Attitudes and behaviours of user groups on Cannock Chase

Area of Outstanding Natural Beauty

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A thesis submitted in partial fulfilment of the requirements of the University of Wolverhampton for the degree of Doctor of Philosophy

July 2021

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Abstract

Increasing amounts of leisure time and more availability of income following post-recessional financial issues have contributed towards growing public usage of free parkland areas, such as Cannock Chase Area of Outstanding Natural Beauty, putting such areas under pressure from environmental issues. The behaviours of users of parklands have been extensively researched, with scarce attention to the investigation of underpinning attitudes. Of available theory, Ajzen's Theory of Planned Behaviour (1985) model and Dunlap *et al*.'s (2000) New Ecological Paradigm scale are arguably the most effective in identifying and measuring the link between attitude and behaviour. The aim of the present programme of study was to explore user and non-user attitudes to environmental issues and then develop and test an intervention to increase awareness and pro-environmental attitudes. Baseline data involved data collection from 701 users and 210 non-users. Participants completed both attitudinal questionnaires and users took part in semi-structured interviews. Baseline data analysis indicated user group participants reported low pro-environmental attitude scores, suggesting room for improvement. In terms of improving pro-environmental attitudes, studies show educational interventions are highly effective, with simultaneous use of multiple emotional appeals used in an online format. Content analysis of existing AONB intervention posters and leaflets were used to develop an image based poster intervention. Intervention was emailed to participants with an initial questionnaire (n=234). Over a six month longitudinal study, participants repeated questionnaire completion at months two (n=196) and six (n=210). Results indicated pro-environmental attitudes all improved initially from baseline, then all decreased at month two, and largely increased from month two to month six. Females, higher qualified, middle income, car users, photographers, nature activities and runners were among the most pro-environmental post-intervention. Mood data identified all emotions built into poster were experienced, therefore improvements were influenced by the intervention. Viewed collectively, results indicate that the study has identified poster interventions are an inexpensive, easy and effective method of improving pro-environmental attitudes. Research has shown poster method can be used by subject specialists and non-specialists; such an intervention is scalable and potentially effective. Future research is needed to investigate the efficacy and effectiveness of scalable interventions to improve pro-environmental attitudes

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Acknowledgements

I would like to thank my Directors of Studies Dr Crispin Dale and Dr Paul Fallon, and supervisory team members Prof Andy Lane and Dr Ade Oriade for their support and guidance throughout this study.

I would also like to thank the School of Sport, Performing Arts and Leisure and also the Faculty of Arts within the University of Wolverhampton, and the University itself for enabling this study to take place. My thanks go to Ali Glaisher at Staffordshire County Council and Rob Lamb at the Forestry Commission who provided access for gathering data at Cannock Chase AONB. I would like to thank everyone who participated in and provided feedback to the primary data collection of this study.

Finally I would like to express great thanks to my family Robert Jackaman, Sheila Jackaman and Hilda May Jackaman for all their support and understanding.

Chapter One

Introduction

1.0 Introduction to the Chapter

This first section will examine the broad trends of UK parks, in terms of usage, factors contributing to usage rates seen and predicted, and the damage impacts to their environmental sustainability. This will be followed by an examination of these issues specifically in the context of Cannock Chase Area of Natural Beauty (AONB), which this present study has found to be under prolonged and serious threat from.

1.1 Study Background

Over recent decades, the amount of leisure time in the developed world has increased (Aguiar and Hurst, 2006; Gimenez-Nadal and Sevilla, 2012). The UK specifically has seen a reduction in overall work hours, with increases across the employment sector including temporary and part time roles (Jones, 1986; ONS, 2011; IFS, 2015; ONS, 2019). Total UK disposable income, valued at just under £801 billion in 2005 (National Statistics, 2007) rose to just below £1,276 billion in 2016 (ONS, 2018a). These disposable incomes are increasingly being spent on leisure, with an annual value of £68billion spent in 2011 (Mintel, 2012) and forecast to rise to £141 billion by 2022 (Mintel, 2018).

Together with these projected spends, visits to many leisure attractions in England and Wales continue to rise (VisitEngland, 2018; Welsh Government, 2018).

However, the 2008 economic recession and following years of economic downturn and slow recovery have severely impacted on consumer confidence towards disposable income levels and spending (Yilmaz, Zengin and Yildiz, 2007; IFS, 2017; Ahmed, 2018). The recession has seen a reduction in the amount of income spent on leisure to a low of approximately £66billion in 2010 with present growth issuing from this historically low point (Mintel, 2012). It is worth noting that simultaneously, many free leisure attractions in England and Wales have seen significant increases in visitor numbers over recent years (VisitEngland, 2018; Welsh Government, 2018).

Over the past decade, one attraction category that has seen significant and largely consistent increases in user numbers is to country parks. These increases have come from a combination of usage types, including employment, in-situ residents as illustrated in Table 1, and from local/day trip/overnight(s) stay/overseas visitors who have risen between 2-5% year on year. These increases are projected to continue to increase (VisitEngland, 2009; 2010; 2011; 2012; 2013; 2014; 2015; 2016; 2017; 2018), as indicated in Table 2.

Global damage to these public parks is an issue that not only is becoming increasingly recognised by members of the public at greenspace sites on a local level (Northumberland Coast AONB, 2013; Cannock Chase AONB, 2000; Chilterns AONB, 2008; Cannock Chase AONB, 2012; IPSOS, 2012; Shropshire Hills AONB, 2013; NPS, 2016; Malvern Hills AONB, 2019), but has been elevated to national and international public attention (Moore, 2017; Watson *et al.*, 2018), and has generated government environmental legislative action to ensure the long term protection of these parks (HM Government, 2018; National Parks Conservation Association, 2019; BC Parks, 2019). This is a growing challenge for parkland managers, to protect and

sustainably maintain these areas, simultaneous to pressure from the need to generate funds to enable this work which largely comes from mass tourism, and the threat of habitat loss from site development (Moore, 2017; Simmonds *et al.*, 2018; Watson *et al.*, 2018; Cannock Chase Council, 2019).

National Park	Mid 2002 population	Mid 2012 population	Mid 2017 population	Annual visitor numbers (Year of Source, referenced in UK ANPA, 2011)
Brecon Beacons	32,500	33,400	33,700	4,046,000 (2009)
Dartmoor	33,800	33,900	34,300	2,390,000 (2009)
Exmoor	10,700	10,200	10,200	1,380,000 (2009)
Lake District	41,200	40,400	40,300	15,800,000 (2009)
New Forest	34,300	35,100	35,300	No data
North York Moors	23,900	23,200	23,000	7,000,000 (2009)
Northumberland	2,000	2,000	1,900	1,506,000 (2009)
Peak District	37,700	37,800	37,200	8,420,000 (2009)
Pembrokeshire Coast	21,400	22,900	22,500	4,176,000 (2009)
Snowdonia	24,900	25,600	25,400	4,270,000 (2007)
South Downs	106,800	113,200	116,900	No data
The Broads	5,800	6,200	6,500	7,200,000 (2009)
Yorkshire Dales	19,500	19,600	23,500	9,000,000 – 10,000,000 (2007)

Table 1: Approximate National Park population numbers 2002, 2012 and 2017, and annual visitor numbers (ONS, 2013; ONS, 2018; UK ANPA, 2011)

Area of Natural Beauty (AONB)	Historic visitor No. estimate (per annum)	Most recent visitor No. estimate (per annum)	Most recent population numbers estimate	Source
Anglesey AONB/ AHNE Ynys Môn	282,000	398,700	16,556	Isle of Anglesey County Council (2014)
Arnside and Silverdale	No data	No data	7,070	Arnside & Silverdale AONB (2018)
Blackdown Hills	No data	No data	13,392	Blackdown Hills AONB (2014)
Cannock Chase	1,500,000	2,350,000	12,000	Cannock Chase AONB (2000); Cannock Chase AONB (2008a); Cannock Chase AONB (2012)
Chichester Harbour	1,360,500	>1,500,000	10,585	Chichester District Council (2009); Chichester Harbour Conservancy (2018)
The Chilterns	No data	55,000,000	80,000	Chilterns Conservation Board (2014); Landscapes for Life (2018a)
Clwydian Range and Dee Valley/Bryniau Clwyd a Dyffryn Dyfrdwy	303,626	417,126	No data	Clwydian Range and Dee Valley AONB (2016)
Cornwall AONB	No data	No data	No data	-
Cotswold Hills	No data	23,000,000	150,000	Cotswolds AONB (2018)
Cranborne Chase and West Wiltshire Downs	No data	No data	32,000	Cranborne Chase & West Wiltshire Downs AONB (2009)
Dedham Vale	No data	>355,072	<10,000	Dedham Vale AONB (2016); Landscapes for Life (2018b)
Dorset AONB	No data	>2,000,000	90,000	Landscapes for Life (2018c)
East Devon	No data	<3,151,000	30,640	East Devon AONB (2013); Landscapes for Life (2018d)
Forest of Bowland	No data	>200,000	21,000	Forest of Bowland AONB (2014)
Gower AONB / Gŵyr AHNE	<780,000	<840,000	10,000	Landscapes for Life (2018); Swansea Council/ Cyngor Abertawe (2016)
High Weald	No data	>1,900,000	124,880	High Weald AONB (2013); High Weald AONB (2018)
Howardian Hills	No data	791,000	5,950	Howardian Hills AONB (2018)
Kent Downs	No data	20,000,000	66,000	Kent Downs AONB (2009)
Lincolnshire Wolds	3,263,000	3,440,200	10,701	Lincolnshire Wolds AONB (2018)
Llŷn AONB/AHNE Llŷn	320,000	389,000	5,850	Llŷn AONB (2010)
Malvern Hills	No data	>1,500,000	13,000	Malvern Hills AONB (2012); Landscapes for Life (2018e)
Mendip Hills	No data	No data	37,993	Mendip Hills AONB (2018)
Nidderdale	No data	Encompassed within Yorkshire Dales data	Encompassed within Yorkshire Dales data	-
Norfolk Coast	No data	>1,320,000	18,109	Norfolk Coast Partnership (2009)
North Devon	No data	>2,000,000	12,000	Landscapes for Life (2018f); North Devon AONB (2016)
North Pennines	No data	14,600	12,000	Landscapes for Life (2018g); North Pennines AONB (2016)
North Wessex Downs	No data	No data	125,000	North Wessex Downs AONB (2019)
Northumberland Coast	No data	>45,000	12,500	Landscapes for Life (2018h); Northumberland Coast AONB (2014)
Quantock Hills	No data	<1,825,000	No data	Natural England (2013)
Shropshire Hills	No data	6,000,000	19,300	Shropshire Hills AONB (2005); Shropshire Hills AONB (2009)
Solway Coast	No data	No data	3220	Cumbria County Council (2012)
South Devon	No data	No data	33,000	Landscapes for Life (2018i)
Suffolk Coast and Heaths	No data	3,230,000	>8913	Suffolk Coast & Heaths AONB (2013); Suffolk Coast & Heaths AONB (2014)
Surrey Hills	No data	>1,000,000	30,000	Surrey Hills AONB (2014); Surrey Hills AONB (2018)
Tamar Valley	No data	No data	27,000	Tamar Valley AONB (2010)
Wye Valley	1,400,000	1,580,000	25,000	Forest of Dean District Council (2015); Wye Valley AONB (2013); Wye Valley AONB (2018)

Table 2: Approximate historic and recent/current AONB visitor numbers, and population numbers

There are many cumulative reasons behind the significant increases to UK park visitor numbers, with authors listing a variety of factors behind the figures evidenced in Tables 1 and 2, which will be discussed here. Generally, the UK population has seen substantial increases over recent years. What was just under 59 million in 2000, had grown by over 12% to over 66 million in 2017. This is expected to rise by more than 10% to just under 73 million by 2041 (ONS, 2018b), heightening the potential impacts from increasing domestic tourism. Similarly, in 2000 the global population was 6.15 billion which rose by 20% to 7.38 billion in 2015, and expected to rise by a further 25.6% to 9.27 billion by 2041 (Roser, Ritchie and Ortiz-Ospina, 2019) in relation to potential impacts from increasing overseas tourism. It has been argued that during periods of relative stability, park visitation may rise by 0.2% below the total percentage population increase, and that population changes have been found to be the strongest predictor of increased park use (Poudyal, Paudel and Tarrant, 2012).

Another motivation for park visitor increases is a desire to be in natural spaces, and to enjoy scenery, nature, and the surrounding landscape (Chiesura, 2004; National Parks, 2018). The World Bank (2018) has identified that since 2001 there has been a consistently rapid increase of the UK population moving out of rural areas to urbanised regions, with latest figures showing 83.4% of the UK population now lives in urbanised areas. It has also been observed that the travelling distance between where visitors reside, and the park itself, is often a good predictor of which locations site visitors are likely to choose (Cannock Chase AONB, 2000; 2012). However, geographical proximity is not always the deciding motivational factor (Lin *et al.*, 2013).

Socialising with family and/or friends is a frequently cited motivation, as is relaxing and getting away from hectic urban work/life schedules (Chiesura, 2004; National Parks, 2018). Adevi, Uvnäs-Moberg and Grahn (2017) explored the use of parks for their de-stressing and therapeutic qualities. It was found that accessing green spaces helped support whatever inner needs individuals had, whether being more extroverted and seeking out more opportunities for social interaction, or seeking a more calming environment and solitude. Visiting parks has further been shown to reduce blood pressure, increase feelings of relaxation (Ochiai *et al.*, 2015) and promote a range of positive feelings including freedom, unity with nature and happiness (Chiesura, 2004).

Taking part in a variety of outdoor activities is also a motivational factor for visiting parks (Chiesura, 2004; National Parks, 2018). This combines with, and is encouraged by widespread media promotion of healthy lifestyle trends, particularly towards diet and activity levels, together with some recorded improvements seen. Reports on obesity across Organisation for Economic Co-operation and Development (OECD) listed countries globally have ranked the UK as being the sixth highest among adults, with UK adult population obesity rates increasing from 15% in 1993 to 26% in 2016. Reports have shown 2-4% of UK adults are currently classified as morbidly obese, with 30-40% identified as overweight. Childhood obesity rates have doubled from 10% in reception year to 20% in Year 6 with many more identified as overweight (NHS Digital, 2018).

Of the changes to activity levels seen over time, decreases have been recorded in both the number and distance of walking trips taken from 2005 to 2015, but whilst fewer cycling trips are being taken, distances of cycle trips have increased significantly by 26% from 2006 to 2016. Changes in dietary consumption habits have

largely worsened since 2005, with fewer people in most age groups consuming the daily recommended five portions of fruit and vegetables (NHS, 2006; NHS Digital, 2018); both these areas contributing to the high obesity rates seen.

Over recent years reports show that in young persons aged 11-15, the use of drugs has declined from 2003 to 2014, smoking has declined since 1996 to the present and likewise alcohol consumption has declined since 2003 to the present (NHS Digital, 2017). Prevalence of alcohol consumption amongst adults has declined from 2007 to 2016, and quantities drunk have declined from 2007 to the present for all age groups except 65+ which experienced a very small increase (NHS Digital, 2018a). Smoking amongst adults has declined by 4.9% since 2011 to the present (NHS Digital, 2019), with adult drug misuse rates slightly decreasing since 2008 (NHS Digital, 2018b).

Healthier lifestyle choices have also been aided and encouraged by a number of legislative measures, such as the introduction of the smoking ban in July 2007, and associated health problems shown via graphic imagery on tobacco packaging. Also through duty rises in price for alcohol and tobacco products, alcohol bans in town and city centres, and promotion and encouragement of travel by public transport/cycling/car-sharing to reduce carbon dioxide emissions and congestion. Also through promotion of both the “five a day” fruit and vegetables and Change4Life healthier eating campaigns, among many others. The report findings by Chiesura (2004), Ochiai *et al.* (2015), Adevi, Uvnäs-Moberg and Grahn (2017), NHS Digital (2017), National Parks (2018) and NHS Digital (2018a; 2018b; 2019) show that many of the UK’s population are now choosing healthier lifestyles. These findings may further contribute to the elevated park usage identified in Table 2. This point is underpinned by Thompson (2010); Gaikwad and Shinde (2018) and Kim and Miller

(2018), who discuss the historical and contemporary large scale use of parks and green spaces in contributing toward good physical and mental health and a healthy lifestyle. This point is underpinned by the ONS (2018d), who have shown that urban area parks across the UK actively provide cooling effects against increased temperatures associated with concentrated population zones. Parks also reduce levels of noise pollution and air pollution, as site vegetation acts as a natural sound buffer and particulate filtration system.

This combination of factors indicates that impact pressures to parks from increased use are likely to continue and become more intensely felt (Pickering *et al*., 2009). Trends have been identified in the notable increase of adventure tourism including family and environmentally responsible tourism Mintel (2008), together with significant increases to the number of staycations taken; staycations being characterised as trips taken domestically, or still more locally to where participants live (Hall, 2014). Mintel (2018a) states the number of domestic holidays taken by UK tourists has risen from approximately 53 million in 2014 to approximately 61.7 million in 2018, and is expected to increase to 64.8 million by 2023. One to three day staycations are the most popular recently taken trip making up 50% of the domestic market, and the only staycation length to consistently increase over the past three years. Of the types of recent staycation, 38% were taken for activities related to parks or green spaces, i.e. camping, countryside holidays and activity based holidays.

Mintel (2018a) suggests domestic trips have risen in popularity by tourists trying avoid potential post-Brexit travel issues, and expects UK tourists' overseas trips to continue to decrease and budget staycations to further increase. This may increase even more should post-Brexit economic conditions become similar to the 2008/9

economic recession. Following the previous recession, in May 2008 it was found that 17.2 million British holiday makers planned on doing walking, cycling and horse riding activities over the coming year, with 18.4 million more planning other outdoor recreational activities. This increase is further seen in Mintel (2010), for both hiking and mountain biking, over the period 2005 to 2009 for a number of free access parklands both domestically and internationally. The former of these, where visitor numbers have more recently risen by tens to hundreds of thousands where records exist as seen in Table 2.

Poudyal, Paudel and Tarrant (2012) have identified that increased park usage is positively related to employment, which as discussed earlier are both steadily on the rise (Aldrick, 2013; Pym, 2013; ONS, 2019). For those in employment, as regarding monthly income levels, a report by Mintel (2008) found that adventure tourists were most likely to be lower earners receiving either £1,000 - £1,500 (£12,000 - £18,000 per annum), or £2,000 - £3,000 (£24,000 - £36,000 per annum) per month. The former group of these in particular earning a relatively low income, for which their disposable income is likely to be even more limited. Mintel (2013, p.1) stated that, “the only factor restraining recovery in leisure spending is the monthly fall in living standards caused by inflation being higher than wages growth”. The UK economy has somewhat recovered in recent years with average wage growth of 3.1% (ONS, 2019b) favourably comparing to inflation of 2.0% (ONS, 2019a) as of April 2019. This is in light of many previous years of financial issues together with persistent and continuing low savings interest rates, higher housing rents (Dmitracova, 2019) and a large proportion of UK employment wages classified as low (ONS, 2018c). Mintel (2013, p.1) further states that, “people show a continuing desire for leisure activities that offer affordable escapism during tough economic times”.

To expand on the financial context related to park usage, a study by Franzen (2003) examined the correlation between gross domestic product (GDP) of different countries populations and their respective environmental attitudes; this later topic of which is increasingly discussed in the literature in relation to parkland use behaviours and their range of associated impacts and damage. It was found that the wealthier the country, the higher the proportion of its populace have pro-environmental focused attitudes instead of economic growth focused. Kollmus and Agyeman (2002) argue that environmental attitudes are the final stage in a cognitive process, whereby environmental knowledge is received through educational means and directly forms these pro-environmental attitudes. These attitudes are then transformed by individuals into their physical/overt behaviours.

Conversely, in countries with a lower GDP attitudes were more highly focused on economic growth. It was argued that the reasons for these two correlations is due to the higher degree of socialisation that takes place wealthier countries and compared to their less wealthy counterparts. Individuals from wealthier countries have more disposable income available, allowing for reductions in the number of work hours needed to earn sufficient income, allowing for more free time that can be spent in social situations and pursuing leisure activities. As a result, greater amounts of leisure time expose the population to more experiences and educational information, allowing knowledge and attitudes of related benefits and issues to be formed and more highly developed, including those that are environmentally related. Overall, it was found that disposable income levels plus the amount of time spent on site correlates directly with the level of their pro-environmental attitude development (Franzen, 2003). Whilst these results may be supported by the findings of Liu, Ouyang, and Miao (2009) and Ntanos *et al.*, (2018), this may not necessarily be the

general rule, as found by Pienaar, Lew and Wallmo (2014) in their USA study that lower income respondents had more pro-environmental attitudes.

As discussed above, visitors to green spaces and parks are causing significant damage to the sites themselves through some or all of the following actions: littering (DEFRA, 2010), the degradation of footpaths, a soil compaction and erosion (Martin, Butler and Klier, 2018) and water and air pollution (TRAN, 2018). Also through: disturbance to livestock (East Herts Council, 2010), footpath widening (McHugh, Harrod and Morgan, 2001; Rodway-Dyer and Walling, 2010), reduced genetic biodiversity (Jimenez *et al*., 2014) and road congestion in and around parks (Eckton, 2003). Also through: loss of vegetative groundcover and soil exposure (Martin, Butler and Klier, 2018), reduced tree regeneration, barriers to wildlife, tree root exposure, muddiness and reduced drainage (Leung and Marion, 2000). Further to these physical impacts, visitor over-tourism can have wider reaching negative impacts on local communities, such as: inflated goods prices in shops as tourists have increased disposable income, overcrowding, and alcohol and substance abuse. Also through anti-social behaviour, reduction in affordable housing for the local community, low paid short/temporary employment based around the tourist trade and goods supplies aimed only around tourist needs (Lake District National Park, 2019). Further from overloading to infrastructure and resource demands, vandalism, diminished living conditions of local residents leading to economic inequalities, social exclusion and damage to heritage and culture (TRAN, 2018). Issues about damage to green spaces are becoming increasingly recognised at a local level (Northumberland Coast AONB, 2013; Cannock Chase AONB, 2000; Chilterns AONB, 2008; Cannock Chase AONB, 2012; Shropshire Hills AONB, 2013; Malvern Hills AONB, 2019). Along with other environmental issues, these have cumulatively increased to such a degree that

the UK Government is in the process of changing legislation and taking stricter steps to resolve this over the long term (HM Government, 2018).

However, these issues could arguably be a necessary side effect to leisure tourism, and the funding it attracts, which in turn financially secures development and management of a given site. However, this is a self-fulfilling issue, as it has been shown that growth in parkland tourism is encouraged by park management, by use of marketing and improved onsite facilities, which frequently leads to over-tourism and site damage; the revenue from this tourism being needed by park managers to fund site management and remediation work resulting from this and previous over tourism (Simmonds *et al*., 2018). Studies have shown there are significant differences in not only the actual levels of damage caused by the number of diverse site activities, such as horse riding and hiking, and frequency of use (Deluca *et al*., 1998; Leung and Marion, 2000) and grazing animals (Evans, 1997), but also the underestimated levels of damage perceived to be caused by individual users themselves (Symmonds, Hammitt, and Quisenberry, 2000). Studies that have examined park user group impacts tend to discuss the impacts as being caused by other users only, and not by the participants themselves (Yu *et al.*, 2018), although there is very little research into this.

These are all challenges which park managers are finding increasingly difficult to sustainably manage, particularly so as park-related tourism is described as essential by park management for the income it brings to the local areas (Mooney, 2005). Also, this tourism is purposely built into future ongoing strategies (Cannock Chase AONB, 2009; 2014). These collective findings indicate that these issues, which are already commonly seen globally on parkland areas and are reported in academic and non-academic reports, will become an increasingly large issue for the long term

health and sustainability of these sites and the flora and fauna they support. To this end, on-going research is recommended by authors across the literature, in order to inform and improve management decision making, to safeguard both the user experience for the beneficial effects accessing parks bring (Fleming, Manning and Ambrey, 2015; Liu *et al.*, 2016), and safeguard the physical environment itself (Symmonds, Hammitt, and Quisenberry, 2000; Pickering *et al*., 2009).

Published research within this area has mainly focused on end product impacts of parkland damage. Available data has shown that park users recognise site degradational effects to be an important and significant issue (Dimitrakopoulos *et al.*, 2009; Yu *et al.*, 2018). Pickering *et al*. (2009), Liu, Ouyang and Miao (2009), Kim, Airey, and Szivas (2011) and Sreetheran (2016) concur that with the increasing popularity of this form of leisure, and lack of data available, much more research is urgently needed to determine the link between socio-environmental constructs, such as attitudes, awareness, motivations and actual behaviour of these user groups. These studies agree that damage causation is largely from user behaviours, which are heavily influenced by the cognitive processes that precede them.

Liu, Ouyang and Miao (2009, p. 2255) concede that "… few studies have assessed the … relationship between social context and environmental attitudes" of site users. Also that, "… research into the attitudes and motivations…" [of user groups] "… suggest that there is still more to learn" (Pickering *et al*., 2009, p.552), and that a better understanding of both perceptions and park visiting habits are needed (Sreetheran, 2016), very little of this research has yet been undertaken. Despite these author recommendations, on the local to global scale, there remains a lack of academic research available. This limitation lies within the theories that examine

links between environmentally related knowledge and attitudes, and their influence on behaviour, particularly so within park contexts where research is scarce.

Research into parkland damage is partially theory-based, although still of a small quantity (Liu, Ouyang, and Miao, 2009; Halpenny, 2010; Lopez-Mosquera and Sanchez, 2011; Kim, Airey and Szivas, 2011; Buta, Brennan and Holland, 2012; Goh, Ritchie and Wang, 2016). The vast majority of research into parkland damage is non-theory based (Northumberland Coast AONB, 2013; Cannock Chase AONB, 2000; Chilterns AONB, 2008; Cannock Chase AONB, 2012; Duckworth, 2012; Shropshire Hills AONB, 2013; Suffolk Coast & Heaths AONB, 2013a; High Weald AONB, 2013; Clwydian Range and Dee Valley AONB, 2014; Forest of Dean District Council, 2015; Malvern Hills AONB, 2016; Cornwall AONB, 2016; Arnside & Silverdale AONB, 2019; Malvern Hills AONB, 2019). Whilst these non-theoretical data sets are important, largely they amount to little more than usage surveys that only identify existing issues, and not how to remediate them. Of the very small quantity of existing theory-based research, authors have gradually built on previous findings to try and determine how these park-related issues can be resolved, although very little new information is being generated in this field. Within this limited number, many studies make no acknowledgement as to the generisability of their methods across subject areas. Of those that do discuss this, Lopez-Mosquera and Sanchez (2011), Fornara *et al.* (2015) and Kiatkawsin and Han (2016) advise that despite the results of their studies which in many cases are very positive, the methods they have used cannot be generalised across environmental subjects or across individual park settings. This lack of generisability necessitates much more site-specific research, of which none currently exists for Cannock Chase AONB. This present study will address this gap and provide new knowledge within this subject.

Symmonds, Hammitt, and Quisenberry (2000, p.550) identified that “there remains a need for more research that focuses on the specific needs, preferences, and experiences of different user types”. This recommendation is supported by Cessford (2002); Bjerke, Thrane and Kleiven (2006) and Pickering *et al*. (2009) who agree that previous research has all too often grouped users together and has not examined each group individually. However, from the limited research to date that has compared different parkland stakeholders, studies by Yilmaz, Zengin and Yildiz (2007), Liu, Ouyang and Miao (2009) and Kim, Airey, and Szivas (2011) have only differentiated between visitor groups based on past experiences. Whereas some other studies have only looked at single user group perspectives, as seen in Symmonds, Hammitt, and Quisenberry (2000) and Martin, Butler and Klier (2018). Overall, very few studies have compared the different parkland user groups in terms of these constructs. Further limits to current research have been identified more generally by Ulker-Demirel and Ciftci (2020), and in more detail by Pickering *et al*. (2009) who discuss how current recreation ecology research has predominantly focused on the various end impacts to soil and flora, and having largely been studied in China, Australia and the USA. This narrow range of countries that have received study in this topic area is an issue identified by Bjerke, Thrane and Kleiven (2006) and again by Ulker-Demirel and Ciftci (2020), as even fewer related studies have been carried out in the UK. These identified gaps in the literature provide further relevance of the urgent need for this present study.

As already discussed, knowledge is the consumption of educational information and is argued to directly influence attitudes, which themselves directly influence behaviours (Kollmus and Agyeman, 2002). Many studies have observed this two-step link and have examined the efficacy of educational interventions on influencing

attitudes, and ultimately influencing behaviours. Many methods have been attempted, including lectures (Sohn *et al.*, 2011), activities (Hutchinson *et al*., 2015) and online learning platforms designed to be used at the individual's own pace (Schwarzer *et al.*, 2016). These interventions have been examined in longitudinal studies for their efficacy over a variety of time periods (Au *et al*., 2015; Schwarzer *et al.*, 2016). Studies such as these have aligned their experimental educational designs to the requirements of their subjects, and with a mind to the design's feasibility and cost efficacy (Formoso *et al.*, 2013).

These same factors are considered and used by businesses and organisations from local up to global scale (Scottish Government, 2009; Republic of Mauritius, 2011; Seattle Government, 2014; Limerick City & County Council, 2015; NHS England, 2015; Amble Town Council, 2016; St Benildus College, 2018; Clean Up Britain, 2018; VicWater, 2019; HELMEPA, 2019). In these groups, easy to implement low cost interventions, such as posters and leaflets, have been used to beneficial effect (Formoso *et al.*, 2013; Raney and Van Zanten, 2019). These methods can be updated easily and inexpensively to retain the behavioural benefits they are helping to encourage. Across these existing studies is a repeated call for more research, to determine the best methods by which to influence and encourage the shift towards pro-environmental attitudes and behaviours.

1.2 Study Area

One UK park that has not received any published academic research into these theory-based socio-environmental constructs is Cannock Chase Area of Outstanding Natural Beauty (AONB). This park is situated in South Staffordshire, England and

was designated an AONB in 1958. The smallest AONB in mainland UK at 26 square miles and having 58% of its area accessible by the public, it contains woodland and valley wetland habitats, and large areas of lowland heathland habitat which are identified both as internationally rare and threatened. It also contains areas which are protected as Sites of Special Scientific Interest (SSSI) and Special Areas of Conservation (SAC). These legislative protection initiatives have been set in place to preserve the historic features of the site, as well as the faunal and floral ecosystems present (Cannock Chase AONB, 2009; 2010; 2019). Within the faunal context, the area is home to many species of wildlife, including deer, a variety of insects, small mammals and birds. In addition to its AONB designation, and SAC and SSSI status zones, the park has been identified as having environmental maintenance, biodiversity and wilderness protection as major priorities (Mintel, 2010). This being all within the acknowledged issue of increased recreational pressure from high leisure tourism usage (Cannock Chase AONB, 2010).

Usage surveys have shown that use of the site is steadily increasing; receiving approximately 1.52 million annual visits in 2000 (Cannock Chase AONB, 2000), which by 2012 had risen to an estimated 2.35 million, a rise of just under 55% (Cannock Chase AONB, 2012). With easy access on foot, by public and private road transport and by train, Cannock Chase is used for a wide range of activities, including pursuits both of low and high impact. It is surrounded by a number of large urban areas comprising residential villages and towns including Stafford at its Northwest border and Cannock and Hednesford at its Southern boundary, with a population of many thousand living on and around the site, together with many people in employment within the AONB zone. Significant recreational demands have been placed on the site by these generalised user groups, with particularly heavy

use of soil trails and bridleways. Other than the residential and commercial sections, focal points experiencing high visitation are found at and near to the more developed areas of the park, such as visitor centres, car parks and the Shugborough Estate. The majority of the Chase remains undeveloped and has limited facilities (Cannock Chase AONB, 2000).

User activity groups are diverse and include activities such as: hiking, cycling, dog walking, quad/motor biking, jogging, running, picnicking, observing wildlife, fishing, sailing, horse riding, camping/caravanning and foraging. Also the use of facilities on site which include children's play areas, GoApe activity/assault courses, open air art installations, cafes, museums and leisure centres/sports grounds, places of worship, historic/memorial and cultural installations. Facilities use also includes the road network for travelling through to other destinations, and a number of organised public events, concerts and open air shows. These collective uses give rise to the potential for forms of site damage exhibited in other parklands that receive significant leisure usage (McHugh, Harrod and Morgan, 2001; Rodway-Dyer and Walling, 2010) as discussed above. Further scope for pressures to the site may also come from the existing commercial presence, including: logging, quarrying, food and drinks venues, farming, retail outlets, small businesses, transport links, a telecommunications tower and a motor racecourse.

From both the 2000 and 2012 usage surveys it is unclear whether these authors do include visits to Shugborough Estate that lies within the AONB border, within their breakdown of total visitor data. Majority visitor catchment is consistently from the areas immediately surrounding the site, with approximately 70% travelling from up to 10miles away previously (Cannock Chase AONB, 2000), and increasing over time to 88% that have travelled from up to 15km/9.32miles away (Cannock Chase AONB,

2012). Historically, the distance travelled to the site was shown to affect visit frequency and duration, with visitors that have travelled longer to visit the site tending to stay longer per visit (Cannock Chase AONB, 2000). This correlation is not discussed in the 2012 survey, so no comparisons can be made.

Visit patterns are mostly short in duration, this pattern being consistent over time, as both surveys reported very little demand has been shown for stays that are overnight or longer. Cumulative percentages of visitors and the duration of their stay on Cannock Chase can be seen in Table 3. These higher frequency and relatively short visits may potentially increase the usage impacts on Cannock Chase, as has been found in studies carried out in other parks. The results of both surveys indicate site users predominantly travel to the site via car, and has decreased over time from 81.3% in 2000 to 77% in 2012. Walking to the AONB has also experienced a small decline from 14.3% to 11% respectively, whilst cycling has almost doubled from 3.1% to 6% respectively, as is also seen on a national scale from NHS reports and discussed earlier (Cannock Chase AONB, 2000; 2012).

Cannock Chase AONB Visit Duration	Cumulative Percentage of Visitors in 2000 (Cannock Chase AONB, 2000)	Cumulative Percentage of Visitors in 2012 (Cannock Chase AONB, 2012)
Up to 1 hour	35%	29%
Up to 2 hours	67%	61%
Up to 3 hours	84%	85%

Table 3: Cumulative percentages of visitors and the duration of their stay on Cannock Chase

Of the longer duration visits, there is no specific historical data available from the 2000 user survey as to numbers of visitors staying overnight, and is only described as being very small but with the infrastructure in place to support many more (Cannock Chase AONB, 2000). However, the 2012 user survey does specify overnight stays as being 1% of all visits, or approximately 23,500 annually (Cannock Chase AONB, 2012). Whilst both surveys do not define their term of "overnight" visitors and whether this covers stays longer than one day, the 2000 report does provide a small discussion as to the activities of this visitor group which are day/part-day length. This suggests that overnight visitors' stays may generally span two days, either full or partial. The two visitor surveys also do not discuss who is taking these holidays on Cannock Chase, i.e. overseas or domestic tourists. However, the stated increase in visitors across activity groups can potentially be supported by the motivations behind visits and the rise in the number of budget staycations discussed in section 1.0.

The significant damage parks are at risk from as highlighted by Chilterns AONB (2008), Duckworth (2012) and Shropshire Hills AONB (2013), among many others discussed above, have also been identified as areas of concern by users of Cannock Chase, both in concern for the site and themselves. This is in the form of: littering/dog fouling, safety concerns, damage/erosion to paths and vegetation, user group conflicts and noise issues. These concerns are not only present, but also are a consistent and ongoing issue for users and site managers (Cannock Chase AONB, 2000; 2012). In this context, the lack of theory-based research into the environmental damage issues on site constitutes a gap in the knowledge. But more than this gap, these issues are of particular concern, given the global rises and projected rises in park use already discussed, which has been seen and recorded as happening at

Cannock Chase also. As a result, research is urgently needed into how these issues the site is experiencing can be remediated for the long term health of the park, its user groups, and the flora and fauna it supports.

Joint management of the site is carried out by the Forestry Commission with staff based in the Birches Valley locality on site, and Staffordshire County Council. In light of the issues raised by the surveys on site usage trends, the 2009 - 2014 AONB management plan has acknowledged the need to develop and enhance the economic aspects of this working landscape. This is simultaneous to conserving the nationally important landscape and the biodiversity it supports, and in also promoting stakeholder understanding so as to effect good, environmentally friendly and sustainable practices regarding the site (Cannock Chase AONB, 2009; 2012). These objectives are reiterated in the present 2014-2019 management plan, which has been amended to emphasise the importance of supporting a balance between the economic and conservation aspects (Cannock Chase AONB, 2014). This balance is especially important, in light of the proposed development of sections of the park for housing, transport and employment related uses, which the local authority acknowledges may require use of some of the green belt within the AONB (Cannock Chase Council, 2019). However, authorities have begun to implement strategies to support the balance of the economy with the environment by the recent change from diesel to electric trains that run along the Chase Line which cuts through the southern portion of the AONB (Reynolds, 2019), although much more needs to be done.

The intensification of these issues currently facing Cannock Chase and their likelihood to continue and increase in the future highlight Cannock Chase as a suitable site for further study recommended in the literature. This is together with

both the minimal research conducted into behavioural impacts, and the absence of research into the influence of cognitive variables on overt behaviours shown by site users. In light of the gaps in knowledge as to group specific trends, Cannock Chase is an important site for further research due to the large variety of user activity groups it frequently receives. At present, no academic research exists that examines the issues facing Cannock Chase AONB, and how they may be remediated.

In summary, the present study will provide a substantial new contribution to knowledge by filling this gap in the literature. This will be done site-specifically for Cannock Chase AONB, together with new contributions to knowledge on both the existing and experimental methodological components it will use to carry out this remediation. This study will provide important information that can be used by Cannock Chase AONB management bodies to directly aid and support their sustainability policies and strategies used on site. In addition to these contributions, the present study will provide academic research that can be used by researchers and park management bodies across the UK and globally to inform their research and practice.

1.3 Structure of the Thesis, Aims and Objectives

The present research will take on board these recommendations from the literature and extend on previous findings to provide a new contribution to knowledge. This will be done by utilising an intervention within the as yet unstudied Cannock Chase AONB parkland, combining a number of format elements within a longitudinal study to try and improve users' pro-environmental attitudes and behaviours. Due to the

nature of the subject being examined, the majority of the present study is ordered into two distinct stages, termed here as Phases.

Phase 1 will examine the models that attempt to determine what cognitive variables influence behaviours, followed by examination of the design and content of self-report scales designed to measure associations between the variables and behaviours (sections 2.1.1 to 2.1.3). Methods used will be discussed in sections 3.2.1 to 3.2.5, and baseline data collected will be also be outlined (sections 4.1.1. to 4.1.3) and discussed (sections 5.1.1 to 5.1.3).

Phase 2 will examine the design and content of an experimental educational intervention which aims to improve the cognitive variables, with a view to them improving behaviours on site (sections 2.2.1 to 2.2.6). Phase 2 methods will be outlined in sections 3.3.1 to 3.3.6, along with results (sections 4.2.1 to 4.2.6), and discussion of results (sections 5.2.1 to 5.2.5).

Both phases will be discussed in the above order, and will contain individual literature reviews, methodologies and results sections to provide clarity and consistency in the discussion presentation, with overall conclusions of the entire study discussed collectively in the sections of Chapter 6.

This structure can be summarised as the following aims and objectives, with the objectives being re-identified in the present study following the discussion sections that fulfil them:

Aim 1 – to establish Cannock Chase AONB user and non-user baseline pro-environmental attitudes and determine the scope for further improvements

Objectives:

- To investigate suitable methods for primary data capture of baseline pro-environmental attitudes
- To design, create and implement a site-specific data collection methodology to capture current baseline pro-environmental attitude information
- To analyse data collected for current pro-environmental attitude levels and themes, and identify the extent to which an educational intervention is required to improve these results

Aim 2 – to identify, develop and implement a suitable educational intervention and data collection methodology to improve Cannock Chase AONB user pro-environmental attitudes

Objectives:

- To investigate suitable educational intervention and primary data capture methods for improvement of Cannock Chase AONB user pro-environmental attitudes
- To identify theoretical content and design considerations to support attitudinal improvement amongst Cannock Chase AONB users
- To design, create and implement a site-specific educational intervention and data collection methodology to capture post-intervention pro-environmental attitude information

Aim 3 – to examine the intervention and data collection's efficacy and predictive ability in pro-environmental attitude improvement, and future research recommendations

Objectives:

- To analyse and identify post-intervention pro-environmental attitude trends in social demographic groups to inform future predictions
- To analyse and identify intervention efficacy in attitudinal improvement, and methodological issues encountered
- To identify future recommendations and further research needed based on the outcomes of the present study

Chapter Two

Literature Review

2.0 Introduction to the Chapter

Phase 1 examines the cognitive variables that precede behaviours and their definitions, together with the common theories and self-report scales used to measure them, so as to identify the most appropriate tools to allow collection of baseline responses from site users. Phase 2 will examine the design and content of interventions, with a view to identifying the most effective methods for the present study, to try and improve the cognitive variables the literature deems most relevant, and the behaviours of user groups.

2.1 Literature Review for Phase 1 of Study

Examination of the literature has highlighted that end behavioural impacts are directly influenced by a number cognitive components, referred to as variables, in an ordered process. Therefore, through interventions aimed directly at one or more of these components, it is argued that behaviours, manifesting as overt impacts, can be influenced to be more pro-environmental. Unfortunately, the terminology used when discussing these variables is highly interchangeable across the study field. This has given way to variables being simultaneously discussed and defined as the same, sometimes partially the same, or even entirely separate components. This issue can be seen in Schreyer, Knopf and Williams (1984); Grob (1995) of beliefs, awareness, perceived control and values being the same as attitudes; Goossens (2000) of motivation being the same as attitudes; Kollmus and Agyeman (2002) of awareness

and concern being the same as attitudes; Solomon *et al*. (2006) of affect, beliefs and behaviour as attitudes; Halpenny (2010) of awareness being partially the same as attitudes; Zsoka *et al*. (2012) of awareness, values, willingness to act and concern as attitudes, and Hvenegaard (2016) of attitudes as being separate to other variables such as knowledge, awareness and behavioural intentions, among others.

Attitude is a prominent variable featured throughout the literature and has been an important focus in many papers for initially how it is influenced (Franzen, 2003), and importantly its own significant influences on overt behaviours. Liu, Ouyang and Miao (2009), Duerden and Witt (2010) and Gronhoj and Thogersen (2011) have reported that attitudes have cross-subject direct effects on influencing behaviours, and of the need for more research into this area (Luo and Deng, 2008; Yu *et al*., 2011; Hvenegaard, 2016).

Attitude has been defined across a number of studies, although not all studies on this topic define the terminology they are examining, or otherwise do not include the definition by others that they agree is applicable. Where definitions have been given, some argue attitude to be:

- A long-term general evaluation concerning issues, objects or people including self (Solomon *et al*., 2006).
- A cognitive trend, that evaluates an item or issue and is expressed favourably, unfavourably or neutrally (Schofield, 2009).

- “Attitude is a psychological tendency that is expressed by evaluating a particular entity with some degrees of favour or disfavour … evaluating refers to all classes of evaluative responding, whether over or covert, cognitive, affective, or behavioural” (Eagly and Chaiken, 1993, cited in Williams and Lawson, 2001, p.272).
- Kollmus and Agyeman (2002) proposed that both environmental concern and environmental awareness are the same as environmental attitude.

Attitude has also been interchangeably used with other terms, including: awareness, concern (Kollmus and Agyeman, 2002; Zsoka *et al.*, 2012), values (Franssen and Garling, 1999; Arnocky, Stroink and DeCicco, 2007) and motivation (Goossens, 2000). It has been used as the strength of a behavioural intention (Franssen and Garling, 1999) or behavioural intention simply as a choice between yes and no (Previte, Russell-Bennett and Parkinson, 2015), and behaviour as a physical form of attitudes (Solomon *et al*., 2006). The noted significance of the attitude-behaviour relationship, together with the prominence of attitude in the literature and the interchangeable nature of terms prevalent across existing studies, may arguably give rise to attitude being of even greater and wide spread importance than the other cognitive variables examined in the literature, as mentioned above. This interchangeability of these variables may potentially further expand attitudes coverage and importance in the literature; this may come through its inclusion in further studies under different terms, such as concerns, values, awareness, or any of the other interchangeably used variables discussed above.

To date, a limited number of authors have developed individual theories on the content and order of cognitive-behaviour relationship models, with each model

containing merits and limitations, as discussed in section 2.1.1. These studies have highlighted a number of scales used to test the validity of these models, frequently taking the form of a statement orientated questionnaire, and containing statement questions targeted towards individual components. These statements have been developed via different ways; a) newly developed by the authors, b) revised from a previously derived scale(s) for their study-specific use, or, c) amended to avoid the use of less socially acceptable terminology, and, d) most frequently answered via the standard 1-5 option Likert scale. The following literature review will examine and evaluate a number of the current cognitive models and test scales used in studies to determine how important the attitude variable is in predicting overt behaviour(s). Both the model and scale sections of this review conclude with the most appropriate versions used in this study.

2.1.1 Attitude-Behaviour Relationship Models

With particular reference to the attitude variable, as discussed above, this section will examine a number of models from the literature that seek to identify if attitude is a direct influence on behaviours, and if so how strongly.

2.1.1.1 Norm Activation Model

Examination of the literature has shown there are a small variety of models that attempt to structuralise the exact order and components of the cognitive process. The Norm Activation Model (NAM), developed by Schwartz in 1977, focuses on actions (behaviours) being taken as a direct result of a personal and moral obligation

as activated by an individual's norms, their direct influences. This model argues there to be three cognitive variables which combine to influence behaviours, these variables are awareness of consequences and ascription of responsibility, which in turn influence personal norms before behaviours (Song, Zhao and Zhang, 2018).

Over time authors have differed on what constitutes these norms and which influence behaviour. Matthies, Selge and Klockner (2012) define subjective norms as what individuals deem to be expected of them by others, whilst defining personal norms as awareness of a problem whose resolution requires action. Personal norms are argued to be more deeply held in an individual's value system, and so more strongly influence behaviour (Matthies, Selge and Klockner, 2012), a possible indication for its original inclusion in the 1977 theory by Schwartz. Awareness of consequences is argued to be a perceived threat to others or their environment, with ascription of responsibility deemed to be the individual's belief their behaviour can resolve the issue (Nordlund and Garvill, 2003).

Matthies, Selge and Klockner (2012) used a subjective norm expanded version of NAM to examine the influence of parental information on their children's norms, awareness and subsequent behaviours. The study consisted of a questionnaire developed by Matthies, Selge and Klockner, and distributed via teachers to children from 10 primary schools in Cologne, Germany in May 2007, where questions were oriented to discover aspects of waste paper reuse and recycling. A further version of the questionnaire was given to the parents, with all child-parent pairs of questionnaires forwarded for analysis. Results identified that the conveyance of information had a strong influence on the participants' subjective norms, with results

showing the activation of norms had an important role in generating the overt pro-environmental behaviours seen.

Despite these promising results, Matthies, Selge and Klockner (2012) have acknowledged that a number of the cognitive-behaviour correlations were weakly positive at best, creating inconsistency in the model's overall utility. Whilst the model has been shown to give some utility in explaining the cognitive-behavioural relationship from a familial perspective, it does not indicate how effectively it would identify the relationship in other groups, an issue also recognised by Zhang, Wang and Zhou (2012) in their electricity waste reduction study. Matthies, Selge and Klockner (2012) recognise that to date, the model remains largely untested. No mention was given to the existence, weak or strong, of any relationship between awareness and end behaviour. Awareness could possibly be argued to be the same as attitudes, given the literature's interchangeability of terms discussed earlier. This same argument can be applied to Matthies, Selge and Klockner's definitions of norms, which they relate to values and feelings, which again are used interchangeably in the literature with attitudes. The absence of this relationship potentially suggests that the model is not sufficiently equipped to identify this link, which together with the limited end result consistency and lack of use in single and multi-group environments, made NAM unsuitable for use in the present study.

A study by Song, Zhao and Zhang (2018) also used NAM to examine the impact of haze pollution threats on residents' purchasing behaviours of household appliances that both save energy and reduce emissions in China. These appliance purchases are aimed to both combat this form of air pollution and assist the country in nationwide energy savings. Song, Zhao and Zhang expanded NAM to include

environmental concerns which they deem as perceptions of environmental issues that then influence personal norms and thus behaviours. Song, Zhao and Zhang examined herd mentality as a further moderating variable that may influence the relationship between environmental concern and behaviour. The authors argue herd mentality to be the act by which individuals change and conform their behaviour to be the same as that of others in their social group.

The study used a questionnaire developed by Song, Zhao and Zhang, and distributed to urban residents in Xuzhou City due to the severity of air pollution issues present. 263 hard copy questionnaire responses were obtained following distribution to members of the public through random sampling. 214 electronic questionnaire responses were obtained from the researcher's family, friends and neighbours through convenience sampling. 435 urban resident responses were used. It was found that environmental concern, perceived consumer effectiveness and personal norms did influence behaviour. Contrary to the study by Matthies, Selge and Klockner (2012), personal norms were found to be significant and the greatest influencer (Song, Zhao and Zhang, 2018). Herd mentality was found to be inconsistent in influencing personal norms, and was required to constantly be high impact to achieve any influence on these norms. Herd mentality was also found to negatively moderate the link between environmental concern and behaviour.

Song, Zhao and Zhang's (2018) study has also shown that many variables in their expanded NAM do not influence behaviour, and differ in their findings as to what are significant behavioural influencers compared to the results in other studies. As is often seen with NAM in the literature, future NAM research needs to experiment with the model by expanding it in different ways in order to try and determine which

cognitive variables influence pro-environmental behaviours. This high degree changeability between experimental attempts further suggests the model is insufficient in determining what the influences to behaviour are, and so was unsuitable for use in this present study.

2.1.1.2 Value Belief Norm Theory

Another model examined in the literature is the Value Belief Norm (VBN) theory, developed by Stern, Dietz, Abel, Guagnano and Kalof (1999). VBN argues that the cognitive-behaviour process is an ordered hierarchy, where values influence beliefs, which then influence attitudes, which all combine to produce personal norms which influence behavioural intentions. Values are deemed to be either oriented to the self or to all other organisms and determine what action the individual should take. Whilst no clear definition is given as to what beliefs are, beliefs are used interchangeably with awareness, and is argued that if an individual takes action, negative consequences of an issue can be reduced. Attitudes are seen as the result of an analysis of the pros and cons of possible action. Lopez-Mosquera and Sanchez (2011) argue the more deeply rooted the beliefs are, the more aware people will be of the consequences of their behaviours, implying that awareness and beliefs of consequences can promote improved behaviours to lessen the impacts of the behaviours. The final variable of the model's cognitive process are personal norms, which are defined as the acceptance of self-responsibility, which VBN argues directly influences behavioural intentions (Lopez-Mosquera, Sanchez, 2011).

VBN was tested orally and face-to-face by interviewers from April to June 2010 to a random sample of citizens of Coruna (Galicia), Northwest Spain, visiting the Monte

San Pedro Park, to determine if they would be willing to pay money for the park's conservation. Participants were asked a 41 item questionnaire, where yes/no responses were required for willingness to pay questions, and environmental variables were tested using Likert scale responses.

The New Ecological Paradigm (NEP) question scale by Dunlap *et al*. (2000) was included as part of the questionnaire created and used by Lopez-Mosquera and Sanchez (2011). 194 usable questionnaires were collected. Results indicated that the VBM model yielded significant effects but only in the areas where it was expected. Results further show inconsistent values outcomes were obtained from the combination use of the VBN and the NEP, suggesting the model and scale do not fully work well together to determine cognitive influences on behavioural intention. VBN was found to have a moderate fit to the data collected, which suggests the model only has a moderate ability to predict respondents' willingness to pay for park conservation. Study results identified that attitudes had a direct and positive impact on awareness, with awareness directly influencing acceptance responsibility for an individual's own actions, and it was shown that this responsibility variable created personal norms, which in turn influenced behavioural intentions. Whilst the study does have some success in determining factors that influence behavioural intentions, these are in light of contradictions given by Lopez-Mosquera, Sanchez as to the precise order of the cognitive variables in their pre and post-results discussion.

A number of issues were acknowledged by Lopez-Mosquera and Sanchez (2011) in VBN's overall ability to effectively identify the cognitive-behavioural relationship. More broadly, it was acknowledged that findings exhibited from the model in their study cannot be used as indicators for parks generally. Raymond, Brown and

Robinson (2011) also argue that findings from the model cannot be used as indicators generally across recreation. The model was found to be inadequate in determining participants' behavioural intention of willingness to pay based on values, with some interchangeability of terms being used.

Whilst elements of the relationship were shown to be linked, some variables were only moderately identified as behavioural indicators, with some inconsistency seen in the results. Whilst the model does have some success in determining the cognitive process up to intentions, it gives no indication if the intentions to behaviour will manifest as pro-environmental behaviours or not, as behaviours are omitted from the model. Raymond, Brown and Robinson (2011) discuss that their study results showed behavioural intention to have no significant prediction value on overt behaviour. Due to these weak and varying relationship levels shown in VBN's ability to identify direct influences on behavioural intentions, and any overt behaviours, this model is not appropriate for use in this study.

Kiatkawsin and Han (2016) used VBN to look at undergraduate university student intentions to behave pro-environmentally whilst in tour groups. Kiatkawsin and Han expanded the VBN to include valence, instrumentality and predictability variables. To test this model, an author-developed questionnaire of 7-point Likert scale questions was created and delivered to students in lectures across seven universities in South Korea. However, Kiatkawsin and Han give no mention of the sampling method used, or the format of the questionnaire, i.e. hard copy or electronic. 538 questionnaire responses were obtained. Consistent with Lopez-Mosquera and Sanchez's (2011) study, Kiatkawsin and Han found three similar findings:

1) that the model identified personal norms as the strongest influence on behavioural intentions;

2) that the model, again, yielded inconsistencies in value significance;

3) that the findings of this study topic should not be generalised for other environmental studies.

Kiatkawsin and Han (2016) acknowledge VBN only goes as far as to show influences to behavioural intentions, and not the behaviours themselves, creating a gap in the literature. They acknowledge that the non-anonymous lecture setting the questionnaire was delivered in may prevent respondents giving true opinions due to societal pressures, thus necessitating further research in a setting where respondents can be guaranteed privacy and anonymity to give true answers.

VBN has also been used to examine the influences on home owners' intentions to use renewable energy in their homes. Fornara *et al.* (2015) have amended the VBN to suggest that values influence beliefs and awareness of consequences, which influence ascription of responsibility and moral norms and thus behaviours; Fornara *et al*. suggest moral norms are activated by values and beliefs. Attitudes influence intentions separately to this cognitive chain. Participants were selected from two cities in South Sardinia, Italy using gender and age quota sampling. Responses were collected using an author-developed questionnaire of 5 point Likert scale questions. Questions were a mixture of mostly those created by Fornara *et al.* and some taken from the literature, and examined both the cognitive variables and socio-demographic data in their amended VBN model. 432 participant responses were used. It was found that as part of the cognitive chain moral norms most strongly determined intentions, with ascription of responsibility less so. Attitudes, used in the

model as a standalone variable were strongly related to the strength of intentions and only slightly less than the moral norms. Overall, similar findings were obtained as has already been discussed in other studies, over VBN's inability for individual study findings to be generalised to other environmental topics and that the model only goes as far as behavioural intentions, not behaviours. To this end Fornara *et al.* (2015) recommend further research into other models that do determine overt behaviours from cognitive influences.

As identified with NAM, studies in this section that use VBN have to experiment with the model by expanding it in different ways in order to try and determine what cognitive variables influence pro-environmental behaviours. Again this changeability between experimental attempts, together with result inconsistency and ongoing limitations further suggests VBN is insufficient in determining what the influences to behaviour are, and was unsuitable for use in the present study.

2.1.1.3 Elaboration Likelihood Model

Kim, Airey and Szivas's (2011) study at Lulworth Coastal area, South England was based around the Elaboration Likelihood model (ELM), developed by Petty and Cacioppo in 1986, which aims to alter behaviour via two routes of persuasion: central and peripheral. Peripheral persuasion aims to modify overt behaviours when individuals do not understand the information they are receiving and are unmotivated to improve their behaviour. This type of modification is obtained through use of making a message for change attractive and rewarding, but tends to only last across the short term through spontaneous and temporary behavioural improvements.

Central persuasion is a factor that is focused on behavioural change through modification of the deeper cognitive variables and generally argues that knowledge influences attitudes, which then influence behavioural intentions. Here, knowledge is used interchangeably with beliefs, and it is argued behavioural intentions are the direct precursor to behaviours. Kim, Airey and Szivas argue that attitudes as a single variable are very strong determinants of behaviours. Central persuasion aims to improve behaviours in individuals who are motivated to change through use of educational information. This model recognises participant characteristics greatly influence overall success via either route, as prior knowledge, experiences and attitudes, plus independent interests will yield different results. Kim, Airey and Szivas (2011) recommend that effective informational material must take these differences into account and be accessible by all.

Kim, Airey and Szivas's (2011) study was completed in Lulworth Cove, Southwest England. The wildlife and archeological heritage present make this a popular attraction for various visitor groups, increasing impacts to the site from both soil and cliff erosion. Site management created a variety of related educational material in different formats accessed through the visitor centre to improve visitor behaviours. An author-created questionnaire of 5 point Likert scale statement questions was developed comprising 31 attitudinal and 13 behavioural intention statement items. All statements were taken from multiple existing test scales within the cognitive-behavioural relationship field. Questionnaires were distributed via convenience sampling and only adult domestic tourists were included in the survey; 421 usable questionnaires were obtained. All usable questionnaires were then separated into one of three categories: (1) Non-visitors to the centre, (2) Previous non-visitors to the

centre, but planned to on that visit, (3) Previous visitors to the centre and/or those who would use it on that visit.

Overall Kim, Airey and Szivas (2011) discussed the results of the informational material, and very little discussion of ELM was given. The central route to persuasion was found to be effective in improving low-impact behaviours of category three visitors. It was found that category three visitors were more likely to participate in using the educational material, and so had more pro-environmental knowledge than the other two groups and also more pro-environmental behavioural intentions. In relation to the materials, the study did highlight the benefits of providing educational material as a means to improving visitor knowledge on specific attitudes and specific behavioural intentions over the short term. This finding is supported by Hardy, Vorobjovas-Pinta and Eccleston (2018) who found that ELM successfully enhanced knowledge uptake in individuals.

However, materials developed using ELM did little to improve general attitudes and general behavioural intentions and over a longer term. The material's effectiveness was found to rely on its site-specific nature. Also, it was found that inclusion of emotional-related knowledge, i.e. fear of consequences, improved behavioural intentions. Kim, Airey and Szivas (2011) recommend more research is needed into the most effective strategies to tailor educational materials and their delivery to all site visitors so that all visitor attitudes and behavioural intentions can be improved. Further research is needed into information content and the inclusion of emotional-based knowledge to promote change (Park, Turner and Pastore, 2008; Kim, Airey and Szivas, 2011). As with other models discussed earlier, ELM only goes as far as determining intentions, and omits behaviours.

Whilst ELM does show some short term improvements to behavioural intention change, Kim, Airey and Szivas (2011) acknowledge that actual behaviour change was not examined in the study, giving no insight into ELM's suitability for use in the present study. The model is largely limited by its inability to determine lasting, long term links between cognitive variables, particularly between attitudes towards behavioural changes. A study by Park, Turner and Pastore (2008) identified that whilst positive correlations between attitude and behavioural intention were found, these correlations were moderate. Hardy, Vorobjovas-Pinta and Eccleston (2018) acknowledge that ELM has received little research into visitor related environments, further questioning its applicability for use in the present study.

Due to the weak correlations identified by ELM between variables and behaviour intentions, general limitations and omission of study on influence to overt behaviours, ELM was unsuitable for use here.

2.1.1.4 Theory of Reasoned Action/Theory of Planned Behaviour

Possibly the most dominant and extensively used model in this field is the Theory of Planned Behaviour (TPB) by Ajzen (1985), which is a revision of the Theory of Reasoned Action (TRA) developed by Ajzen and Fishbein (1980).

TRA suggests that overt behaviours are a result of only internal cognitive variables which have been influenced by information received. It is suggested that factual knowledge from previous experience is evaluated and estimated for likely outcomes, creating an attitude which becomes an action choice, an intention to a particular behaviour, with intent being the precursor to the behaviour. Parallel to this cognitive

path, TRA suggests that the same previous experiences have shaped individuals' social and moral values of how they believe relevant others expect them to behave. Dependent on the belief strength and motivation to adhere, otherwise referred to as subjective norms, this then contributes to the individual's action choice, that is behavioural intent and ultimately behaviours (Kaiser, Wolfing and Fuhrer, 1999).

The basis of the TRA and TPB models are much the same, however, TPB goes further and argues that perception of influences on behaviour which are beyond an individual's control are another important variable in the cognitive-intention-behaviour relationship (Kaiser, Wolfing and Fuhrer, 1999).

The TPB model was tested using a series of three questionnaires given to participants from two transportation groups in Switzerland: to Group 1 whose aims are to have minimal negative impacts on nature and humans, and to Group 2 whose aims are car driver's interests. The first questionnaire was given out in December 1993, from which 579 usable responses were obtained. Participants who had completed the first questionnaire were then targeted to complete the second; this having been sent out in May 1994 obtained 438 usable responses. Again, participants who completed the first questionnaire were then targeted to complete the third which was distributed in November 1994 and obtained 445 usable responses (Kaiser, Wolfing and Fuhrer, 1999). Overall approximately, 25% of the drivers association and 75% of the transport association comprised the participant pool. Kaiser, Wolfing and Fuhrer acknowledged that as more participants from the more ecologically-concerned transport association took part, this gives the study an initial biased state. Questionnaires were identical and contained 28 statement questions with 5-point Likert Scale answers to examine the cognitive variables.

It was found that knowledge, values and especially attitudes are highly significant predictors of behavioural intentions and behaviours, even amongst dissimilar groups. Kaiser, Wolfing and Fuhrer (1999) further argue that due to the high predictive power of the model, TPB could be used across domains, this together with the examination of attitudinal components results in the risk of terms being interchangeably used in the study being significantly reduced (Kaiser, Wolfing and Fuhrer, 1999). These findings are also supported in other studies. Greaves, Zibarras and Stride's (2013) research was conducted into pro-environmental behaviours in a UK office workplace. In their study, 48 participants attended informational workshops prior to qualitative interviews which informed the development of an author-created electronic questionnaire designed to test the TPB model variables. 449 responses were obtained. It was identified that whilst social norms had a significant influence in many cases, attitude had a fully consistent and much stronger influence on intentions and strong predictive power within the TPB model.

However, the questionnaire was entirely developed by Kaiser, Wolfing and Fuhrer (1999) from interviewee feedback, which may limit its usefulness due to the quality of the feedback received. This suggests that future research should use a mixed content questionnaire, which contains questionnaire scales from the literature which have proven effectiveness, together with scales developed by the researcher that are tailored to that specific study area. The electronic questionnaire design used by Greaves, Zibarras and Stride's (2013) enabled responses to be given anonymously, reducing social desirability bias in responses. Judge, Warren-Myers and Paladino (2019), in addition to attitude and social norms, found that perceived behavioural control also influenced intentions. Also from the results of their study, they argue that large time delays between questionnaire completion and time when behavioural

intentions are aimed to occur may make it difficult to demonstrate the behaviours caused by these intentions. To avoid this, Kaiser, Wolfing and Fuhrer recommend delivery of the questionnaire close to when the perceived intention is due to occur.

As discussed above in the study by Lopez-Mosquera and Sanchez (2011), TPB was also tested within the same study and context, and found attitudes to be the weakest predictor of behavioural intentions. Even so, TPB was still a much stronger predictor of pro-environmental intentions than VBN, and that in terms of significant influences to intentions, future research should focus on examining attitudes instead of moral norms and values. Further research is also required into actual behavioural intention issues, instead of purely theoretical ones, i.e. to look into overt behaviours and not just behavioural intentions. Lopez-Mosquera and Sanchez acknowledge that the findings of their study cannot be generalised across all parks or all participant samples, and recommend further research into this subject and inclusion of socio-demographic data. Hutchinson *et al*. (2015) identified that there was limited evidence that a professional body-led educational campaign improved participant attitudes more than by delivery from non-professional body staff. For the present study this indicates that in-person researcher involvement with the survey should not have a detrimental effect on the results.

As discussed above, very little research has been conducted into other theories and their ability to determine cognitive behavioural influences, with even less research into their use on parkland settings. As discussed in this section, it can be seen that whilst a high degree of experimentation is conducted by authors, in the use of other cognitive-behaviour models to attempt to determine the influences to behaviour, TPB has been successful in identifying these influences without further additions or

amendments. The high success rate of TPB has been shown in determining the constructs that directly influence and impact overt behaviours. Of these constructs, attitude has been found to be the dominant influencer, supported by result consistency and large scale use across domains including parkland settings. In studies it has been shown through extensive examination, that TPB is highly effective in identifying the cognitive-behavioural relationship, but that more research is needed, and as such will be used in this present study.

2.1.2 Attitude-Behaviour Relationship Scales

From the findings of the previous section, that attitudes are reliable indicators of behaviours and have a high predictive ability, this section will evaluate a number of scales from the literature that investigate and measure attitudes with a view to predicting overt behaviours.

2.1.2.1 Dual-measure Experimental Approach

Kaiser, Wolfing and Fuhrer (1999) used a multi-measure approach to test the pro-environmental attitude-behaviour relationship amongst two automotive related groups. The individual scales used were:

(1) the 33 item Social Desirability (SD) Scale, developed by Crowne and Marlowe (1960) and used in Kaiser *et al*.'s (1999) study using Amelang and Bartussek's (1970) 32 item amended version.

(2) the 38 item General Ecological Behaviour (GEB) measure, developed by Kaiser (1998), which looks at attitudinal cognitive variables of values and behaviour.

The SD and GEB's original 32 and 38 respective statements were initially set as yes/no answer responses. For use in the study by Kaiser, Wolfing and Fuhrer (1999), the items were re-evaluated, with the study using a shortened list of 28 items modified to use 5 point Likert scale answers. Items were grouped into three environmental attitude scales: knowledge (EK), values (EV) and behavioural intentions (EBI); these scales formed the questionnaire that was distributed as discussed in section 2.1.1.4. These three scales were then further divided into two subscales, EK1, EK2, EV1, EV2, EBI1 and EBI2, for subsequent data analysis. Kaiser, Wolfing and Fuhrer noted that the conglomeration of scale statements used is almost entirely skewed towards the positive, potentially putting the results at high risk of bias, as Kaiser, Wolfing and Fuhrer argue that participants are likely to accept and comply with the skew of each question.

Items from the multi-scale identified that the subscales had yielded variable results. From the SD scale, weak to marginal correlation between EK, EV to EBI with environmental attitude was found which was non-significant. From the GEB measure, correlation between EK1 and EK2 with EK was moderately strong to strong; EBI1 and EBI2 with EBI was strong; whilst EV1 and EV2 to EV was moderate to strong. However, weak to marginal correlation between EK, EV to EBI with environmental attitude was found. Kaiser, Wolfing and Fuhrer (1999) identified that perceived behavioural control has minimal influence on behavioural intentions and end behaviours, suggesting that attitudinal factors have higher ability to influence. However, it was found that the GEB measure does have good applicability across

participant groups, allowing it to be used across a range of study topics, but the lack of research using the GEB measure offers limited support for these cross-subject applicability claims. The study by Asvatouriana *et al.* (2018), which examined the knowledge, attitude and behavioural association of a more pro-environmental dietary intake, also used a dual-measure experimental approach containing 29 statement questions from GEB with 5-point Likert scale answers, and the New Ecological Paradigm (NEP) developed by Dunlap *et al*. (2000). Kaiser, Wolfing and Fuhrer identified that whilst initially a small but significant correlation was found between attitudes and behaviours, further analysis found the opposite to exist overall.

Asvatouriana *et al.* (2018) suggest that the poor association between attitudes and behaviours found are due to a general public view; this view in the study being attitudes influenced by knowledge. This view associates pro-environmental behaviour with acts outside the body, such as recycling and energy efficiency during production, and very few people identify it with what foods individuals choose to eat. Asvatouriana *et al.* argue that knowledge and attitudes have a minor influence on behaviours and that these should not be relied upon to influence behaviours. Yet their findings are derived from an acknowledged gap in public understanding of the much larger scope to which pro-environmental behaviour extends, that of acts inside the body, of people's diets. This issue upon which their results have been derived, highlights a low reliability to the findings. Whilst the subject area does not fully correlate with that of the present study, Asvatouriana *et al.* do not mention if their findings are transferable to other environmental topics. Despite some scale successes seen in the use of GEB, the scale yields high variability and inconsistency in results and ultimately low levels of correlation between the collective attitudinal

variables and behavioural intent. Due to these factors, GEB was not be used in this study.

A study by Gabriel, Hoch and Cramer (2018) utilised a dual measure experimental approach using the 39 item Health Belief Model Scale (HBMS) developed by Champion (1998). Also, the author created a 22 item Theory of Planned Behaviour Scale (TPBS) inspired by Ajzen (2016), to examine intentions towards participation in a personal injury prevention health related program via 7 and 5 point Likert questions, using paper copy questionnaires. 284 usable responses were obtained from volunteer adult participants from an American university in response to adverts placed via sports club meetings, messages delivered in lectures and paper flyers. Whilst it was found that these scales are somewhat successful in indicating influences to injury prevention related behaviours, Gabriel, Hoch and Cramer do not discuss the scales' applicability to other subject areas, such as parks. The near absence of research on this scale indicates this applicability has not been examined and suggests that there are other scales available in the literature which can examine these influences more accurately, and which studies are using. Further research is recommended into the behavioural influences within these scales over a more varied sample population.

2.1.2.2 Multi-measure Experimental Approach

Lopez-Mosquera and Sanchez (2011), as discussed earlier, examined a multi-scale approach in the formation of their experimental questionnaire design. 41 author-chosen question statements were taken from seven previous studies and combined in their single questionnaire. This questionnaire included some items from the New

Ecological Paradigm, discussed later in section 2.1.2.4. This multi-scale was then examined in a beach setting used for many leisure activities and which contains a varied ecosystem in Monte San Pedro Park, Northwest Spain.

A mixed methods approach was used, where 30 qualitative interviews with experts and visitor focus groups were held to inform the questionnaire's final draft. The quantitative questionnaire was read to participants by the interviewers, with interviewers recording the individual oral responses on the questionnaires. 194 usable responses were obtained from April to June 2010. The results indicated only a variable attitude-behaviour linkage, further suggesting this method of picking and choosing statements from two or more different scales is liable to yield poor quality results. Lopez-Mosquera and Sanchez (2011) made no mention of any majority skew of the statements, further questioning the validity of the results, as bias may be present. Caution should be applied to the results seen in the study as the spoken nature of the questions and answers may result in responses being skewed towards social desirability bias, as highlighted earlier. As such, this highly experimental method of questionnaire design was not be used in the present study.

Saleem, Eagle and Low's (2018) multi-measure experimental approach examined a combination of fourteen existing scales that consisted of original and revision editions, to determine cognitive influences to eco-social car purchase and use. Saleem, Eagle and Low chose study-relevant items from the scales and, following industry, academic and government focus group feedback analysis, 51 items were identified for use in a pilot study. The pilot study was given to 250 automotive customers to aid item reduction to a more manageable size, from 174 responses, items from the scales that achieved high correlation to the cognitive constructs were

used in the final questionnaire. 22 items with 5 point Likert answers were used along with social-demographic questions in paper questionnaires given to 949 automotive customers. Saleem, Eagle and Low found that the scale had good correlation with the constructs and was a good measure to identify purchase, usage and conservation behaviours. It was also noted that issues with pilot study sampling may reduce the reliability of these initially positive results. No mention is given as to whether the scale can be used in other areas of conservation, such as parks, where purchase behaviour is a much less prominent factor.

Despite the issues seen in studies using highly experimental questionnaire designs, this review has identified that studies do use a degree of experimental questionnaire design that incorporates question statements from existing scales. Studies also use newly developed question statements by previous studies and new question statements, alongside socio-demographic questions. Despite the issue that Saleem, Eagle and Low (2018) only state what question statements they use, and omit the reason(s) for these choices, this common design method suggests that they are using their understanding of their research topic to tailor the questions used to be study-specific. This highlighted a moderate amount of experimentalism is a potentially beneficial method, and was incorporated in the present study.

2.1.2.3 Sustainable Tourism Scale

Yu, Chancellor and Cole (2011) examined the sustainable tourism scale (SUS-TAS), which looks at attitudes towards sustainable tourism, created by Choi and Sirakaya (2005). This impact assessment scale was developed to improve sustainability by maintaining the environment of areas which receive high visitation, in response to

the negative impacts resulting from mass tourism. This scale examines attitudes to sustainable tourism via a 44-item questionnaire, which contains seven domains surrounding sustainability issues to tourism development. The large number of individual item statements may have a detrimental effect of putting participants off fully completing the questionnaire/taking part at all. Yu, Chancellor and Cole acknowledged this issue and discuss that further research is needed into how best to reduce the number of items, yet conversely they note that reducing the items down may compromise the reliability of the results obtained. The aim of the study was to determine a shorter version of the questionnaire, whilst maintaining its psychometric validity.

The questionnaire was distributed six times over a 4 month period to randomly selected group of 2000 local residents in rural Orange County, Indiana, USA. From the 649 responses, data collected from the 44 question statements found that 17 were statistically insignificant and so were discarded, creating a 27 item questionnaire. Whilst the 27 statements tested did show statistically significant correlations between the constructs, and that psychometric validity was mostly maintained, a shorter version of the 44-item scale which can fully maintain this validity has yet to be successfully produced. Yu, Chancellor and Cole (2011) recommend that the SUS-TAS scale needs extensive further testing so as to both reduce the number of items non-detrimentally. Additionally, the scale needs to provide a more wide ranging assessment of its reliability across domains, as the study focused on one user group only, and to date very little research has been conducted using SUS-TAS. However, the 27-item scale examined still has the potential to put off participation due to its long list of questions, and whilst question

skew is not acknowledged by Yu, Chancellor and Cole, it can be seen that the shortened scale has a mostly positive skew.

Sirakaya-Turk, Ekinci and Kaya (2008) examined the attitude-behaviour link of two cities inhabitants in Cyprus and Turkey via a shortened 33 item version of the original 44 item scale. Results obtained yielded a moderately strong validity, with recommendations made for extensive further testing of the scale to determine its across-domain validity. As with Yu, Chancellor and Cole's (2011) study, no mention has been made as to positive and/or negative skew of the statements, which as discussed earlier, could potentially increase the risk of bias in the results from social desirability issues and/or immediate compliance with question wording.

In a similar study by Zhang, Cole and Chancellor (2015), a questionnaire containing the 44 SUS-TAS question statements and also socio-demographic questions were posted to 2000 randomly sampled resident home addresses in a similar geographical area to the study by Yu, Chancellor and Cole (2011). 24 Items with lower validity and correlations were discarded. Again, whilst the 20 statements did show statistically significant correlations between the constructs, Zhang, Cole and Chancellor recommend that further research is needed into the creation of a shorter scale that is easier for participants to complete, which is a consistent issue with SUS-TAS throughout the limited literature into this scale. A study by Scaccia and De Urioste-Stone (2016) found that the SUS-TAS generally was statistically reliable scale with which to measure attitudes, but that refinement of the question statements would be needed to increase its behavioural predictive ability.

Whilst there is more balance to this scale than shown in the multi-scale approach examined by Kaiser *et al*. (1999), in terms of positive/negative statement bias, there

is still a moderately significant bias towards a positive skew. While SUS-TAS is a reasonably effective tool to determine the attitude-behaviour relationship, as shown by Yu, Chancellor and Cole (2011), the scale currently contains too many items to be user friendly. This issue was highlighted by Sirakaya-Turk *et al*. (2008), who recommended the need for shorter versions of the scale to be developed. As SUS-TAS has not been widely tested in multi-group situations or across domains, it was not suitable for use in this study.

2.1.2.4 New Ecological Paradigm Scale

An overview of the literature has revealed the New Ecological Paradigm (NEP), broadly similar to its predecessor, to be by far the most extensively tested and used variable correlation scale employed for well over the past decade. Originally constructed as the New Environmental Paradigm by Dunlap and Liere (1978), this Likert scale 12 item measurement tool focused on beliefs of humanity's role in nature. It should be noted that the manner the construct "beliefs" is used in, refers to a collection of unspecified cognitive variables that cumulatively influence attitudes, with attitudes argued to be accurate predictors of behaviours, as discussed earlier. In terms of the interchangeable nature of construct terminology observed already in this study field, as discussed in section 2.1 and the subsections of 2.1.1, Dunlap *et al*. (2000) agree with this finding and state it to be a recurrent issue. Dunlap *et al*. cite the cause of this changeability as an intrinsic uncertainty within this subject field regarding the phenomena being measured, a state which may potentially be sustained due to the vast number of varying and overlapping term definitions in use today. Overall, Dunlap *et al*. (2000) identify endorsement of the NEP to indicate a

pro-environmental belief which in turn is indicative of pro-environmental attitudes and beliefs across many subject areas, and subsequent pro-environmental behaviours.

Whilst the new environmental paradigm scale does benefit from its shorter list of 12 items, Dunlap *et al*. have acknowledged that these items have a significant positive skew toward pro-environmentalism, putting the results at risk of bias. Further issues with the scale exist in that despite the language used in its 1978 conception being as then up to date, this is no longer the case, with some terminology being sexist. It was found that in its current state, the scale was too narrow in its content in the context of problems facing the modern world, and omitted issues surrounding humanity's influence on nature through the likelihood of severe environmental changes which Dunlap *et al*. refer to as "eco-crises". These issues were subsequently addressed in the scale's revised version, the Likert scale 15 item New Ecological Paradigm (NEP) by Dunlap *et al*. (2000) (see Appendix 1), which included an almost even positive/negative item skew of 8/7 respectively and so greatly reduces potential bias. It should be noted that amongst the literature discussed earlier, skew of scale questions is rarely acknowledged, and on the few occasions where it is, a heavy skew exists, making the NEP a low-bias rarity in this field.

Dunlap *et al*.'s (2000) study tested the New Ecological Paradigm (NEP) using a mixed methods approach, where pretesting was first carried out using a sample of American university students, however the exact methodology of the pre-test is omitted. The final draft questionnaire was posted to the home addresses of 1,300 residents from Washington State, USA from March to May 1990. Sampling methodology is not overtly specified, though as the sample group was the same as used in Dunlap and Liere's (1978) study, it is likely to be convenience sampling in

the 2000 study. 145 members of the original group were uncontactable reducing the sample to 1,155, of which 676 usable questionnaires were received, yielding a good response rate of approximately 60%.

The NEP was found to have some moderate, but mostly strong correlations between the 15 items, indicating it has a high internal consistency and so is a consistent measure for individual's environmental belief systems, and compares favourably to the original 12 item scale. This study found that the NEP scale showed predictive validity of participant environmental cognition, although the strength of this validity is not specified. However, items 1, 4 and 14 yielded a significant "unsure" response rate of over 20% (Dunlap *et al*., 2000). It could be argued that the raised proportion of "unsure" responses may be culturally time-dependent to when the study was carried out, and that cultural changes and increases in environmentally related knowledge between then and the present day may lessen these effects, as can be frequently seen in the general media, and as discussed earlier has been highlighted as an objective by Cannock Chase AONB management (Cannock Chase AONB, 2009; 2012; 2014).

From their results, Dunlap *et al*. (2000) recommended that further research is needed to determine the extent of the internal consistency in forming a single construct measure, in fully determining the scale's predictive validity, and its reliability when used across different subject domains and populations. Also, more longitudinal studies are needed to determine pro-NEP endorsement over time, as following corrections for differences between the two scales, comparison of the 2000 study with that of Dunlap and Liere (1978) found that pro-NEP endorsement had moderately increased. Dunlap *et al*.'s (2000) study also highlights the risks to future

researchers in the use of this or other scales, that by using too broad a range of cognitive variables for the chosen scale to measure makes it too difficult to use successfully. As such, Dunlap *et al*. support an examination of fewer scale variables per study. Dunlap *et al*. argue that other scales have tended to use too long and overly complicated measuring instruments, i.e. question statements, which have proven difficult to use effectively, as discussed in sections 2.1.2.1 to 2.1.2.3, by the use of 28 items (Kaiser, Wolfing and Fuhrer, 1999), 33 items (Sirakaya-Turk, Ekinci and Kaya, 2008), and even 61 items (Gabriel, Hoch and Cramer, 2018), among other examples.

This acknowledged need for further research has been taken up by many authors post-scale revision, and has covered the recommended wider field. One such study was conducted in the protected area of Jinyun Mountain (PJM) National Park, situated 40km (24.85miles) from Chongqing in Southwestern China, by Liu, Ouyang, and Miao (2009). PJM is a natural ecosystem which supports thousands of plant and animal species including many that are nationally protected, together with over 10,000 residents in and around it who rely on the park for growing produce for personal use and the local farming industry, together with the tourist industry which sees in excess of 300,000 visitors per year. The NEP was used in a questionnaire format, together with social demographic questions, and author-developed user conflicts questions. Whilst not stated, discussion of the questionnaire suggests it was paper copy format. Surveys were collected during December 2008 from four stake holder groups: business persons, farmers, government staff and tourists. The majority of questionnaires were completed independently, whilst a minority were completed with the assistance of the research team where reduced participant

language skills required a verbal delivery of the questions and answers. 112 usable responses were obtained.

Liu, Ouyang, and Miao (2009) found weak to moderate correlations between the 15 items, indicating a weak to moderate internal consistency. Approximately 23% of participants responded “unsure” to the NEP items, in particular to numbers 4 and 14. Liu, Ouyang, and Miao found that whilst a significant correlation existed between a pro-environmental view of the world and awareness of negative site impacts, the scale was difficult to use as a predictor of behaviour from user attitudes; a finding furthered by Kaiser *et al*. (1999) who found the NEP link between attitude and behaviour to be weak at best. This was found, as in the NEP scale agreement with the oddly numbered questions that exhibited positive skew, and disagreement with the evenly numbered questions that exhibited negative skew is a general indicator of a more pro-environmental worldview. Whilst a marked difference should be seen in the mean values of the odd/even questions, Liu, Ouyang, and Miao (2009) found that mean values were more similar. However, it was identified that pro-NEP scores were obtained significantly more so from participants with higher education levels, whereby these participants exhibited increased understanding and pro-ecological beliefs, together with pro-NEP scores from younger participants and those who were wealthier.

Overall, Liu, Ouyang, and Miao argue that engagement with ecological information and increased education does improve attitudes, and call for more research into educational effects on attitudinal scores. This may go some way to explaining the weak to moderate mean scores, as approximately 54% of the sample group had lower education levels. Liu, Ouyang, and Miao (2009) suggested that NEP questions

4 and 14 may need to be changed to statements that offer more clarity, and can be understood by participants more easily. The study acknowledged that the NEP was translated into mandarin Chinese, which potentially could have given rise to translational issues.

A study by Bjerke, Thrane and Kleiven (2006) was conducted across Norway via purposive sampling. Paper questionnaires were posted to residents' home addresses in November 2000 using a shortened 8 item version of the NEP and outdoor activity interest questions, all using 5 point Likert answers, together with social demographic questions for gender, education level, age and geographical location. From the 2900 resident sample group, 2449 usable responses were obtained. Women, younger participants, and residents of urban geographic locations were found to have more pro-environmental NEP scores, whereas education level was not found to be a predictor of pro-environmental attitudes. Participants interested in certain activities (mountain climbing, fly fishing, mushroom and berry foraging, sailing and landscape photography) generally had more pro-NEP scores, with more women participating in mountain climbing, mushroom and berry foraging and landscape photography than men. There was a similar correlation between age participation in mountain climbing, skiing, foraging for berries only, landscape photography. Speedboat users and large game hunters had low NEP scores. Overall, respondents had a moderately pro-NEP mean score. It was recommended that the NEP needs further testing in relation to group specific behaviours and in other countries/cultures also, so as to objectively analyse its reliability. Bjerke, Thrane and Kleiven acknowledged that group specific education would benefit outdoor venues for the activities discussed in this study.

However, there is a sizable body of research that adds to the findings by Bjerke, Thrane and Kleiven (2006), with many studies having identified a direct link between attitude and overt behaviour. One such study to examine the attitude-behaviour link is Maleki and Karimzadeh (2011), which focused on energy consumption among residents of Urmia in the West Azerbaijan Province of Iran. The study area, located in close proximity to Urmia, is an area of natural and agricultural land use, upon which the local populace depend and actively protect. From a then local population of 596,117, Maleki and Karimzadeh used a 383 person cluster sample derived from a Cochran formula generated statistical sample. The questionnaire comprised a multi-scale approach, enlisting the NEP scale to measure pro-environmental attitudes, and unspecified items developed by Salehi (2009) to measure environmental knowledge, and was distributed to participants in Summer 2010. Maleki and Karimzadeh have given no information about on the questionnaire format.

It was found that both attitudes towards the environment and towards energy consumption were significant indicators of overt behaviours, with significant correlations having been found, but conversely no significant relationship was found between knowledge and behaviour. Maleki and Karimzadeh (2011) discuss that interest in environmental issues is increasing in developing countries, suggesting that findings from future studies may not only be able to contribute new insight to knowledge on a local and national scale, but may be useful to researchers and managers internationally in these increasingly environmentally conscious countries.

However, Maleki and Karimzadeh (2011) have acknowledged that the population of the study location are heavily dependent on their environment for daily life, combined

with inconsistencies in their electricity resources, have contributed to pro-environmental attitudes and behaviours, such as energy conservation naturally developing prior to this study. Whilst the residents' already pro-environmental attitudes and behaviours may give a potential element of bias to the findings, it may also be indicative of pro-environmental attitudes and behaviours of nature park users on a broader international scope, who have a degree of dependency on a site; the example for Cannock Chase AONB being the large proportion of industry (farming, small businesses, retail, hospitality) and tourism (historic/memorial and cultural installations, concerts, museums) on site.

These findings give potential for future intervention strategies, that if a strategy created a site specific form of dependency, this could improve the attitudes and behaviours of users, such as through use of user inclusion in management strategies (Cannock Chase AONB, 2006; 2008). The environmental issues faced by the population of the study may potentially assist future global interventions, as if users are made aware of and have knowledge of the delicate nature of resources they use, and their potentially finite nature, this may additionally improve attitudes and behaviours exhibited.

Most existing literature focuses on cognitive-behaviour variables in a pro-ecological context. Goh, Ritchie and Wang (2016) used the NEP to examine anti-ecological non-compliance behaviours, of hiking off-trails in Blue Mountains National Park, Australia, situated approximately 100km (62miles) Northwest of Sydney. A convenience sample of 325 responses were obtained by researchers of onsite park users, where participants could respond anonymously in an onsite booth. Results indicated that both social norms and pro-environmental attitudes both had a

significant influence on anti-ecological behaviours and exhibited good predictive ability. Conversely, values and perceived behavioural control variables had no influence or predictive ability on behaviours.

Overall, studies agree that more research is needed on the NEP scale which will need to go further and examine across domains and groups, and using longitudinal studies over time. Whilst individual studies differ on the exact nature of their findings, of certain correlations between NEP scores/social demographics/variables, this potentiality was originally acknowledged by Dunlap *et al*. (2000), which re-emphasises their stated argument recommending limits to the number of variables tested at once. These studies discussed above have further identified the components needed in a study questionnaire to support the NEP and provide data for comparative purposes. Whilst study specific flaws have been highlighted to avoid in future studies, the wide ranging and across-domain success of this scale in determining the links between attitude and behaviour, together with other relevant variables, and minimal question bias have shown the NEP is the most effective and reliable scale to measure the cognitive-behavioural relationship with. The NEP displays predictive ability for the pro-environmental attitude-behavioural link, and the anti-environmental attitude-behavioural link, which Liu, Ouyang, and Miao (2009) argue is very important, as it allows researchers to identify negative behaviours amongst participants who may be unaware that their behaviour(s) are detrimental to the environment, and use an intervention to improve this. For these collective reasons, the NEP was used in this present study.

2.1.3 Additional Variables

From the literature a number of further considerations and additional variables have been highlighted as potentially important factors and should be considered within future study methods and questionnaire design.

Zsoka *et al.* (2012) commented that external factors, i.e. pressures from users' social environment, or "norms", can also influence pro-environmental behaviours, via feedback from family, friends and other people that have social significance. Dunlap *et al*. (2000) discusses there is a common issue of interchangeability within the literature, where construct terms frequently alternate and overlap, and often used on behalf of each other due to wide-spread uncertainty as to their individual definitions. As previously discussed, this ambiguity has been shown across terms such as values, awareness, beliefs, and in norms as identified in Matthies, Selge and Klockner (2012). Whilst attitudes have also been included in this interchangeability, they much more frequently appear as a stand-alone and more definitive term that is less prone to uncertainty. Whilst norms have been shown to have some predictive capacity towards behaviours, there is substantial research generated over time that identifies attitudes as having a significant predictive ability, and one that is more highly significant than norms (Kaiser, Wolfing and Fuhrer, 1999; Greaves, Zibarras and Stride, 2013; Zhang *et al*., 2018). There are many more studies in the literature using variables such as attitudes, beliefs and knowledge to determine behavioural influences and omitting the examination of norms altogether (Bjerke, Thrane and Kleiven, 2006; Sirakaya-Turk, Ekinci and Kaya, 2008; Zsoka *et al.*, 2012; Liu *et al*., 2016; Prati *et al.*, 2019). Based on these findings, norms were not examined in this present study.

Lopez-Mosquera and Sanchez (2011) used a multi-scale approach to the questionnaire design, as discussed in section 2.1, social demographic data was highlighted as an important questionnaire component. Lopez-Mosquera and Sanchez recommended to extend knowledge in the cognitive-behaviour link field, future studies must include demographic data for use in comparison analysis, a need echoed by Dunlap *et al*. (2000). These recommendations to close this gap in knowledge have been taken on board by researchers, and social-demographic questions now form a common component of survey questionnaires and have been found to possess important insights into the differing attitudes between groups (Bjerke, Thrane and Kleiven, 2006; Fornara *et al.*, 2015; Zhang, Cole and Chancellor, 2015).

Conversely to the findings by Liu *et al*., (2009) (see section 2.2), the study Bjerke, Thrane and Kleiven (2006) identified the NEP to be weakly associated with demographic variables including education levels. However, Bjerke, Thrane and Kleiven later discuss in their paper how education levels, gender and age are significantly related to specific interests, suggesting the NEP may actually be related to demographic data despite the study's earlier conflicting weak association claims. These findings, together with social demographic question inclusion in the studies discussed in section 2.2, are indicative that these questions must be included in the questionnaire design of this study in order to accurately predict user attitudes and behaviours.

Stedman (2001) discussed that a further relevant variable to attitude-behaviour studies is place attachment; argued as being a physical or non-physical location of great personal importance that users give values and meaning to, but which can

alter over time. The study found that this attachment is linked to a corresponding attitude in users, where individuals attribute positive attitudes towards desirable looking sites, and conversely negative attitudes are developed towards sites that look unpleasant (Stedman, 2001).

Buta, Brennan and Holland (2012) examined place attachment within rural communities near Retezat National Park in Western Romania; a mixed methods approach was used. Initial multi-stage random sampling was used to select villages, snowball sampling was then used to select 24 participants beginning with local community members. Semi-structured interview feedback was collected and informed an author-developed experimental questionnaire which itself took inspiration from previous studies' experimental questionnaires, and was delivered either orally or posted to resident home addresses from a random sample of 580 homes. Questions used 5 point Likert answers. 270 usable responses were collected. Income level was found to have a negative effect on place attachment, whilst social interaction and length of residence had a significant positive effect. In a similar study that examined visitors place attachment by Romolini *et al*. (2019), drivers were found to have higher levels of place attachment compared to those who travelled by other means, also that homeowners had higher levels than renters and lower and middle income visitors had lower place attachment scores than higher earners, further identifying the differences that exist between groups when looking into this construct.

Overall, place and natural environment attachments, whilst inconsistent, do have some significant attitudinal and behavioural predictive ability. Linked to these findings was an acknowledgement that translational issues and cultural contrasts may have

contributed to weaker results seen, indicating that place attachment could potentially be a more significant influence than has been recorded (Buta, Brennan and Holland, 2012). This study discussed that parkland sustainability and conservation is supported by engagement with site management strategies; central to this engagement is place attachment. These studies are among many in a growing body of research that highlights the value of place attachment in predicting attitudes and behaviours of users, and their need for consideration in questionnaire design.

Halpenny (2010) examined the effect of place attachment on behaviours of visitors to Point Pelee National Park, Southeast Canada. Halpenny developed an experimental questionnaire scale, informed by a series of previous experimental scales from the literature, with 5-point Likert answers. A quota sample of 1191 park visitors from the preceding four years was taken and questionnaires were mailed to their home addresses, 80 were automatically returned due to out of date contact details, reducing the sample size to 1111, with 355 usable responses received. The study identified that place attachment had strong predictive powers towards site-specific behavioural intentions and eventually behaviours, in other words the more users interact with a place, the larger the sense of care develops for that location. As an additional consequence of site-specific place attachment, it was shown to have a strong and positive predictive ability toward general pro-environmental behaviours, which Halpenny argues stems from increases to individual's understanding, and expanding from one specific subject area, i.e. Point Pelee National Park, to many others. To conclude, Halpenny (2010) recommends further research into place attachment influence effects on behaviours in a number of areas: in changes over time and in regard to educational campaigns, to the differences between different

activity groups, and to compare visitors with non-visitors from both local and non-local.

However, Halpenny (2010) and Buta, Brennan and Holland's (2012) findings may not always be the case, as discussed by Uzzell (2000), that individuals' levels of place attachment (and their influences to attitudes and behaviours), may be influenced by how much or how little information they receive about the issues impacting a site. Whilst generally visitors have more place attachment to a site that is local to where they live, rather than far away sites, this could potentially be reversed if they received many media adverts that significantly increased their knowledge of impacts to other sites. This is in addition to Uzzell's (2000) discussion that individuals generally perceive local sites, that they are somewhat responsible for, as having few issues if any, and that as they are small scale no action needs to be taken; conversely, they perceive the sites with the most severe impacts as not being their responsibility and any actions on their part would have no beneficial effect, similar to findings in Mtutu and Thondhlana (2015). Whilst other studies have found significant links between variables, these are not guaranteed.

From this discussion, and despite the patchy results obtained from existing research, there is a moderate argument that place attachment may influence pro-environmental behaviour; based on these findings, the present study included some examination of place attachment within the questionnaire design. The discussion in this section, and also from sections 2.1.1 and 2.1.2 fulfilling Objective one of Aim one.

2.2 Literature Review of Phase 2 of Study

As outlined at the start of Chapter 2, the present study has been ordered into two distinct sections, or termed here as Phases. Beginning here, Phase 2 will examine the design and efficacy of an experimental educational intervention created for use in this study which aims to improve the cognitive variables, in this case attitudes, with a view to them improving behaviours on site; for this, interventions from the literature will be examined, looking at the formats taken and how their effectiveness is measured.

Over previous years, authors have tried different ways in which to improve the attitudes and behaviours of individuals within their given study area. The two main methods used include direct management, where control methods are used for mandatory change, such as legislation, fees, penalties and physical usage limitations to prevent negative visitor behaviours (Kidd, Monz, D'Antonio, Manning, Reigner, Goonan and Jacobi, 2015) but are largely un-studied in the literature, and of the existing studies have been found to be unwanted amongst user groups (Mtutu and Thondhlana, 2015; Asibey *et al.*, 2018). The other method is indirect management, which aims to prevent undesired behaviours by educating, encouraging pro-environmental participation (Jimenez *et al*., 2014) and influencing the cognitive process of visitors prior to resultant behaviours emerging. The latter method is not only preferred (Mtutu and Thondhlana, 2015) but regularly featured in the literature and commonly used in applied park management practice via the use of educational intervention strategies (Jimenez *et al*., 2014).

2.2.1 Intervention Strategies

An examination of the literature has identified a number of similar and dissimilar intervention strategies that have been used across subject areas with varying success. Jimenez *et al*. (2014) argues that there are three main typologies of indirect interventions, which can work separately or overlap:

1) Communication, the exchange of information aimed to promote improved knowledge, attitudes and behaviours, whereby the information transfer is one way.

2) Education, the learning process which enables problem solving within subject-relevant individuals.

3) Participation, strategies to encourage improved decision making and practical involvement.

Whilst these three suggested typologies have been separated, the definitions for communication and education seem very closely aligned in that they could be one and the same. This is in light of the interchangeable way terms are used in this subject area, such as awareness (Kollmus and Agyeman, 2002; Zsoka *et al.*, 2012) and values (Franssen and Garling, 1999; Arnocky, Stroink and DeCicco, 2007) amongst others. Aside from this possible issue with the terminology, the three typologies would arguably be best used in combination for optimum effect within the chosen intervention. Ultimately delivery methods and content of the interventions are best employed in a study-specific design (Lopez-Mosquera and Sanchez, 2011).

Sohn *et al.* (2011) examined the use of a multi-stage intervention that used theory lectures and practical elements, and was delivered to nursing students over three and a half months at a university in Incheon, South Korea, to promote improved

health practice behaviours concerning smoking cessation for patients. Whilst interventions are best suited to the specific requirements of individual studies, the three and a half month time period used is exceptionally long in comparison to 15 and 20 minute methods used in other studies, such as Liaw *et al*. (2014) and Au *et al.* (2015) respectively; these two studies identifying that a brief intervention is most effective. Convenience sampling, as used and further validated by Kidd *et al.* (2015), was used to gather 25 mainly female non-smoking student nurse participants, of which 21 usable responses were obtained. Participants received the intervention in the form of a course module comprising a voluntary pre-intervention questionnaire to collect baseline data, followed by a 2hr lecture and discussion. A week later students participated in a 3hr practical scenario where they were randomly placed into groups of 4-5 students, followed by a positively skewed feedback discussion session, immediately followed by a post-intervention anonymous questionnaire; questionnaires were used to collect social demographic data, personal smoking habits, together with beliefs and attitudes towards smoking cessation and perceived barriers to smoking cessation intervention.

Pre-intervention it was found that nurses possessed a positive attitude towards smoking cessation intervention, but identified barriers to improved behaviour from the lack of education received on the topic within their course. Post-intervention it was found that participant behaviours had significantly improved, but that attitudes towards these behaviours had not; Sohn *et al.* (2011) acknowledged this may be caused by students feeling the intervention to be too arduous and time-consuming. This may be understandable due to the intervention's lengthy delivery method in this study, requiring 5hrs of participation along with any additional preparation time. Again, this is an issue highlighted by Liaw *et al*. (2014) and Au *et al.* (2015) of the

need to use a short intervention, and one that is accessible not only in terms of participant ability (Kim, Airey and Szivas, 2011), but of brief duration (Hutchinson *et al.*, 2015). A potential problem with the study concerns the excessively small sample size which Sohn *et al.* acknowledged as being largely homogenous, in this case female non-smokers in their final study year, which potentially may not be representative of the nursing population.

Sohn *et al.* (2011) argue that educational interventions are beneficial for improving behaviours, and are needed to fill current gaps in participant knowledge and skills knowledge, which have provided barriers to improved attitudes towards behaviour and improved overt behaviours. Sohn *et al.* recommend that interventions must be tailored to the targeted recipients, be straightforward and easy to understand, holistically incorporate all relevant topic areas and be delivered concisely over a short amount of time in order to maximise their efficacy. However, despite the improvements attainable via the discussed intervention, the delivery method identified by Sohn *et al.* (2011) is not practicable within the present study in terms of required resources, i.e. on-site teaching facilities and related educational equipment, or from desired participation by Cannock Chase users, as the nursing intervention described was a mandatory, graded element in the students' degree course, whereas Cannock Chase visitation is optional, and lasts 0-3hrs in the majority of visits both historically and more recently (Cannock Chase AONB, 2000; 2012).

Hutchinson *et al.* (2015) examined the use of an activity based intervention to improve the fruit and vegetable (FV) knowledge and attitudes of 1,256 children across multiple randomly selected primary schools in four London boroughs; 777 usable responses were obtained. The activity was to grow fruit and vegetables in

school across two growing seasons over 18 months, with the 777 participants being selected via cluster randomisation sampling, which is little used in the literature surrounding this subject. The sample was split into two groups:

Group A) contained 373 students who received more thorough ongoing support and information, supervision and a training session for their teacher from a member of the Royal Horticultural Society (RHS) staff who specialises in the subject, as well as support from their teacher.

Group B) contained 404 students who received ongoing information and supervision from only their teacher; the teacher attended the RHS training session and received limited ongoing support and information only when needed.

Despite utilisation of these comparison groups, it can be seen that Hutchinson *et al.* (2015) did not use a control group preventing a full comparison from being drawn, unlike as is seen in some other studies to further validate their results (Nguyen, 2017; Jansen and van Schaik, 2018). Hutchinson *et al.*'s study aimed to identify if students receiving ongoing specialist information and support would show greater knowledge and improved attitudes towards FV than students who received ongoing standard information, to inform development of optimum future intervention content in improving these cognitive areas.

Knowledge changes were assessed via FV recognition using 12 fruit and 16 vegetable photographs. Attitude changes were assessed using a questionnaire developed by Hutchinson *et al.* (2015) and which contained 10 attitudinal statements created by Hutchinson *et al.* using guidance from previous studies, and questions on social demographic details which participants completed individually. Behaviour was assessed using a 24hr home diary completed by the children's parents. These

elements were completed immediately before the intervention, to determine the baseline, and directly after its completion, 18months later. Children in Group A) were more likely to receive free school meals, attended schools with high deprivation rates and recognised fewer FV at the baseline. The sample included a large quantity of respondents that speak English as a second language, who may have struggled with the English FV names, potentially limiting response reliability.

Overall, the study found a lack of evidence that an intervention developed and delivered by a specialist organisation increases participant knowledge, attitudes and behaviours more so than compared to an intervention led by non-specialist teachers (Hutchinson *et al.*, 2015). Group B) attitudes were found to be more positive towards improvement, which may have been due to the influences of increased teacher demonstration and longer spent doing the activity than in group A). There was no difference between A) and B) for attitudes on FV preparation self-efficacy, however Hutchinson *et al.* acknowledged that due to participant ages in the range of 7-10years, this unsupervised end behaviour would not be expected. Hutchinson *et al.* recommend that other aspects for attitudinal improvement may be more effective than those tried here, such methods include peer influences and interventions being delivered more frequently. It was found post-intervention that Group A) showed a greater improvement to their knowledge of FV, however this was not significant and was likely accounted for by the group having much lower knowledge levels at the beginning of the study compared to Group B.

There was no significant association found in either group between an increase in knowledge leading to improved behaviours. It was argued that the lack of significant differences between Groups A and B results was due to the sample being too

homogenous, as all participating schools had already chosen to integrate nutrition related information into their gardening education, and it is likely that any significant improvements to knowledge, attitudes and behaviours had already occurred pre-study. The limited behavioural results presented may be due to the nature of the respondent sample, in that participants' diets will largely be controlled by their parents, with very little scope for their own dietary choices. Another drawback acknowledged by Hutchinson *et al.* (2015) was the intervention design's lack of a true control group that did not take part in any of the study-related education that Groups A and B did, an area which needs further research. A further limitation of the study was the exclusion of "don't know" amongst the answer categories, which may have reduced the reliability of the responses as respondents may have chosen inaccurate responses with which to answer the statement questions, which could have been avoided using 5-point Likert answers.

The activity based interventions outlined by Hutchinson *et al.* (2015) have limited success, which in comparing the two groups was largely due to their high similarities. However, the study has identified some key themes, that when interventions are delivered more frequently, they are more likely to have lasting impact, particularly in allowing improved attitudes to naturally develop into subsequent behaviours. Also that improvements in attitudes and knowledge may not necessarily result in improved behaviours in certain population groups, particularly children, due to peer and parental controls. For effective change, a variety of intervention strategies must be used to improve attitudes, and that information used must holistically cover the subject, all simultaneously. Further to this mention of activity groupings, and the findings by Bjerke, Thrane and Kleiven (2006), in that certain activity groups were

found to be more pro-environmental than others, this has given rise to the following hypotheses:

Null Hypothesis (H0): Participant activity group is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Alternative Hypothesis (H1): Participant activity group is a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Null Hypothesis (H0): Participant user group type is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Alternative Hypothesis (H1): Participant user group type is a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Liaw *et al*. (2014) examined how nurse-physician relationship stereotypes could be improved in staff from both groups through use of a collaboration intervention. The sample group was derived from all 102 students that had attended a specific education program as part of their courses, from which 23 medical students and 73 student nurses volunteered, within the National University of Singapore. A part experimental questionnaire was developed by Liaw *et al*., which contained socio-demographic questions, and existing scales that examine collaboration and stereotypes as per the study's subject area, and piloted to an unspecified sample of new students, with feedback informing the final draft questionnaire which was

distributed to participants to collect baseline data. This was then immediately followed by a pre-intervention introduction session on communication strategies to all participants, as was the following intervention where respondents were divided into mixed groups of both student nurses and medical students. Each group received two alternating observational/practical 15 minute patient health related simulation scenarios. Following the initial scenario, a debriefing session was completed where staff and students held reflective discussions on what had been learnt and to aid in removing any uncertainty as to the content. After the discussion the other scenario was held, with student observational/practical roles reversed to allow application. A post-test questionnaire was completed directly after the full intervention. Pre and post-test questionnaire statements used a combination of 5 and 4-point Likert answer scales, the 4-point scale questions did not contain the unsure answer category.

The study found that following the intervention, both medical and nursing students exhibited significant improvement in their attitudes towards professional collaboration in post-test scores, with a strong positive correlation between knowledge and attitudes. Baseline attitudes were found to be the result of stereotypes as opposed to knowledge through role-related experiences. Whilst the intervention by Liaw *et al*. (2014) was successful, the test did not examine if the intervention had any lasting effects on attitudes beyond the immediate post-test questionnaire, which Liaw *et al*. acknowledge was a weakness of the study, along with the largely homogenous sample group which was predominantly female. These study procedures and results, whilst of some informational value, offer very little to the needs of the present study's intervention, which will not be used on a homogenous sample, given the diverse user population identified in Cannock Chase AONB (2000; 2012) visitor surveys. The

present study aimed for a longer term attitudinal change for the continued sustainability of the study site, which Liaw *et al*.'s single point study is ill-equipped to offer guidance on. As with the intervention method outlined by Sohn *et al*. (2011) delivery of a practical session is not practicable within the present study in terms of the required resources. However, unlike Sohn *et al*.'s study, Liaw *et al*. identified that a brief intervention, in this instance of two 15 minute blocks, can yield successful attitudinal improvements.

Au *et al.* (2015) examined the efficacy of an educational intervention as part of the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), a national nutrition program set up for national use across the USA; the study compared an in-person only, with an online only intervention delivery method. 667 respondents were randomly sampled from two Los Angeles based clinics from which 590 usable responses were obtained. From this sample, 359 received an in-person education session, and 231 received an identical educational content session delivered to them online; sessions through both delivery methods were estimated to take 15-20mins to complete.

Questionnaires were author-developed and consisted of newly created knowledge questions based around the intervention content, and questions from existing subject-related scales that were adapted by Au *et al.* (2015). Questionnaires were piloted to between 10-15 mothers that used other WIC clinics not participating in the survey, with feedback informing the final draft. Both groups completed identical questionnaires during the study that were designed to assess respondent knowledge, attitudes and behaviours; all questionnaires were completed semi-anonymously. Questionnaires were administered immediately before the intervention

to collect baseline data, and again immediately afterwards, and at 2 and 4 months post intervention to assess the longitudinal ability for any improvements the intervention may create. All post-intervention questionnaires contained social demographic questions.

There was a non-significant increase in knowledge retention shown by the online group between the post-intervention questionnaire and the follow-up questionnaires, compared to the in-person group (Au *et al*., 2015). Many more significant improvements to attitudes and behaviours were recorded for the online group, compared to the in-person group. Overall, both groups displayed improvements to their knowledge, attitudes and behaviours. Both groups reported similar reductions in barriers to improved behaviours and self-efficacy levels, with the online group engaging in improved behaviours more frequently and for a longer period post-intervention than was found in the in-person group. Generally, the online group was found to be better educated and had previous experience participating in online lessons. More non-English speaking participants in the online group were unable to access the intervention and/or failed to complete the questionnaires.

In light of the issues encountered by different social demographics, Au *et al*. recommend participant groups generally will benefit from the information being presented accessibly in a range of formats to suit all experience and ability levels. Overall, Au *et al*. (2015) identified that online education interventions can be as effective as information received in-person for improving knowledge, attitudes and behaviours up to four months afterwards. Whilst the results of this study are very promising, particularly in consideration of an online delivery method which Au *et al*. have shown to reach a sizable sample of their target population, caution must be

used based on subject and population comparability. This may be an issue for the present study, due to its environmental subject and specific population being different to that of Au *et al*.'s subject and population.

Results identified a potential issue with in-person education, that a negative user-instructor relationship may develop, which may impede the quality of any cognitive and behavioural improvements. However, despite the online groups' behaviours improving the most, Au *et al*. note that the in-person group behaviours were initially better and so had less scope for such a large improvement. Despite this issue, Au *et al*. recommend that further research is needed into online only education interventions, as results showed that online interventions greatly improved the variables in participants, with significant results seen particularly to attitudes and behaviours. Further to the discussion point of higher education levels in some participants by Au *et al*. (2015), and the variable's effects on intervention success, this has given rise to the following hypothesis:

Null Hypothesis (H0): Participant highest qualification is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Alternative Hypothesis (H1): Participant highest qualification is a predictor of pro-environmental responses on the New Ecological Paradigm scale.

The online intervention delivery method outlined by Au *et al*. (2015) was highly practicable for use in the present study, this is light of increased internet usage in the

adult population of the USA having risen from 84% in 2014 to 90% in 2019 (Statista, 2019), with the UK adult population experiencing similar internet use increases of 86% in 2015 (ONS, 2015), rising to 99% amongst 16-44year olds as of 2019 (ONS, 2019c). Additionally, whilst by 2015, approximately 75% of the USA population had smartphones (United States Census Bureau, 2018) rising to approximately 81% in 2019 (Statista, 2019a), again similar increases could be seen to increases in the UK adult population's use of smartphones from 66% in 2015 (Ofcom, 2015) and rising to 78% as of 2019 to become the most widely used internet-connected device (Ofcom, 2018). Using a cross-sectional survey of the WIC program's clients, Au *et al*. (2015) identified that 51% accessed the internet via a computer device whilst 23% accessed it via a mobile phone, with 25% using both kinds of device equally; at present there is no equivalent internet access data for Cannock Chase users.

Ofcom has reported that smartphone devices are increasingly being used to browse the internet, with average use at just under 2hrs each day in 2015 and having risen to just under 3.5hrs by 2019, together with the finding that more people are now seeing smartphones as their primary internet access device, having overtaken laptops in 2015. Whilst 90% of 16-24 year old adults already own a smart phone, there is increasing take-up amongst 55-64 year olds with ownership increasing from 19% in 2012 to 50% in 2015 (Ofcom, 2015a; 2018).

These findings may potentially indicate an improved online information take up by Cannock Chase users, as Cannock Chase AONB (2000) identified that 18% of its users are between 55-64 years old in 2000, with 41-60 year olds comprising 48% of its users in 2012 (Cannock Chase AONB, 2012). These national results for the UK

allow for potentially increased exposure of Cannock Chase's user population to online delivered interventions when onsite or offsite, as argued by Au *et al*. (2015).

An online platform was used as an intervention by Schwarzer *et al.* (2016), which aimed to improve the dietary attitudes and behaviours of adult residents of Greece, Italy and Spain. A purposive longitudinal sample of healthy adults was taken from the three countries; of the 653 volunteer participants 112 usage responses were obtained. An initial questionnaire containing subject-specific scale questions and social-demographic questions including gender, age and location of residence was administered via the platform to collect baseline data, followed by the educational intervention. Intervention content was largely textual, although Schwarzer *et al.* do not specify if other content was used, such as images/audio recordings/videos. The text contained information on the advantages and disadvantages of adopting the healthier diet and potential barriers to the adoption, quizzes to test participant knowledge, feedback opportunities for participants to write in open text, role-model success stories and a reviewed weekly planner.

Unlike Liaw *et al*.'s (2014) single point study, Schwarzer *et al.* (2016) used an identical questionnaire administered 2 months after the first to examine any changes that had resulted. No significant differences were found between socio-demographic groupings for gender or country of residence. Older participants showed particular improvements towards their dietary behaviour, with overall improvements to participant behaviours recorded, although these could not be credited to the intervention due to the absence of a control group. Despite the study's questionable intervention success, the use of a longitudinal examination into the intervention's efficacy is a highly useful tool for the present study, given the need for longer term

attitudinal change needed for Cannock Chase AONB's environmental sustainability. These discussion points for gender, age and geographic location of residence variables by Bjerke, Thrane and Kleiven (2006) and Schwarzer *et al*. (2016) have given rise to the following hypotheses:

Null Hypothesis (H0): Participant gender is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Alternative Hypothesis (H1): Participant gender is a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Null Hypothesis (H0): Participant age is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Alternative Hypothesis (H1): Participant age is a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Null Hypothesis (H0): Participant area of residence is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Alternative Hypothesis (H1): Participant area of residence is a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Schwarzer *et al.* noted that the self-reporting nature of the dietary questionnaire used may yield biased results due to participants deliberately or accidentally recording inaccurate answers as to their eating habits. Whilst this was ruled out of Schwarzer *et al.*'s (2016) study through validation testing, the potential issue remains for all studies, including this present study which rely on participant self-reporting questionnaires for data collection. The study did not collect data on how long participants interacted with the intervention material, which prevents determination of whether a short or lengthier interaction was most beneficial. Also, the study greatly suffered from the absence of a control group; whilst the results gave a positive indication, there is ultimately no proof that the intervention was responsible for the improved behaviours, with Schwarzer *et al.* recommending further research into online interventions but with the inclusion of a control group.

A review of the existing literature has shown that despite the common use of general and specifically online interventions, there are very few papers that have examined environmentally related attitudinal and behavioural change through educational interventions, with very few focusing on these within a parkland context. As discussed above, a large proportion of existing research has focused on dietary and health/medical practice related topics. The study by Kidd *et al.* (2015) whilst examining a similar topic to the present study, only focuses on influencing the end behaviours of users, and not the attitudes which precede these behaviours. Their study examined the efficacy of a selection of different educational interventions designed to improve visitor spatial behaviour and minimise off-trail travel up to the summit of Sargent Mountain at Arcadia National park, Maine, USA. 339 participants were selected using convenience sampling and given a GPS device to record quantitative spatial data on where they hiked in the park during their visit.

Three intervention strategies and a control were used independently over a month with one method per week, during week days and weekends. This method covered all four routes up the mountain except for strategy T1, ensuring all visitors experienced a form of information input: the control (T0) consisted of existing directional signage and trail markings, the interventions consisted of T1) an ecologically-based message delivered verbally by a uniformed volunteer to groups and individuals at the mountain summit, T2) trail-side signs that are each identical and contain an ecologically based message showing the ecological benefits from improved behaviour and contained similar content to that spoken in T1. Strategy T3) trail-side signs that are each identical and contain an amenity based message showing personal recreational benefits from improved behaviour (Kidd *et al.*, 2015). Study strategies 2) and 3) used identical portrait page formats containing a large font title at the top taking up just under a third of the page, two large, equally sized images side by side below the title with identical captions beneath taking up over a third of the page, and a textual section containing a subtitle with three supporting bullet points taking up less than a third of the page.

It was found that differences between different treatment groups were statistically significant; T1 resulted in the least off-trail hiking around the summit, whilst T2 had the most off-trail hiking. No significant differences were also found in off-trail dispersion between T0, T2 and T3 (Kidd *et al*., 2015). However, very few participants recalled seeing the physical signs along the mountain routes, and of those, even fewer recalled the signs' message. Potential impact area using T1 was reduced by 39-47%, with a reduction of 47% by T2, a reduction of 41% by T3, and a reduction of 39% by T0. Kidd *et al*. (2015) acknowledge that the reduced visitor dispersion from T1 may have been from the message, or from the presence of the uniformed

volunteer, or both, but are uncertain as to the actual cause. The sign-based strategies' lacking results may be due to poor choice of positioning along the trails, preventing them from being seen, such as placement in steep terrain points where visitors focus is more on gaining safe footing, that together with the inconspicuous nature of the sign content which from its colouration blends into the natural environment. Kidd *et al*. recommend that further research is done into the effectiveness of both onsite and pre-trip intervention strategies in both physical and online forms, and to determine if the interventions are creating pro-environmental cognitive improvements that lead to improved behaviours.

Whilst Kidd *et al*. (2015) have successfully shown that different environmental education interventions can improve visitor behaviours when delivered onsite, there has been no examination of online delivery methods as a possible T4 examination route. Online methods could have been beneficial in this type of study, as successfully shown by Au *et al.* (2015), considering that the majority of Kidd *et al.*'s (2015) participants did not see the physical intervention signs, and were unmemorable to the vast majority of those that did see them. This in some part is potentially acknowledged by Kidd *et al*. in their discussion, as they point out that the success of T0 may be due to visitors being already well informed from other information sources. Even though T1 did create some pro-environmental behavioural change, the exact cause of this still lies in question, together with the associated resource implications this in-person method would require, which whilst possible across the short term would be unfeasible for the medium or long term. The study does not look at the long term nature of the improvements it has found, and whether they last or not, and possibly if one of the other strategies generates longer term improvements than T1. Given the issues and lack of success of the methods the

author's use, in-person and onsite physical signs were not used in the intervention of the present study. This discussion point concerning participant mode of travel by Kidd *et al.*'s (2015), and also by Romolini *et al*. (2019) in section 2.1.3 have given rise to the following hypothesis:

Null Hypothesis (H0): Participant mode of travel is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Alternative Hypothesis (H1): Participant mode of travel is a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Based on the future research recommendations by Au *et al*. (2015), Kidd *et al.* (2015) and Schwarzer *et al.* (2016), together with the successful fundamental design outlined by Au *et al*. (2015), and alongside the considerable recorded improvements and potential improvements identified by these and many other authors discussed in 2.2.1, the present study used an online only intervention delivery method, tailored to Cannock Chase AONB, and using language and images that were accessible to all experience and ability levels (Kim, Airey and Szivas, 2011), and fully understandable within the timescale of a few minutes or less (Sohn *et al.*, 2011; Hutchinson *et al.*, 2015). The use of an online intervention further improved accessibility for participants, given the high online usage rates discussed above.

As shown by Kidd *et al.* (2015), interventions do not need to be highly text based to convey the intervention content, this being further supported by the need for intervention materials to be accessible to all abilities (Kim, Airey and Szivas, 2011)

and time scales (Hutchinson *et al.*, 2015). This is especially needed in the present study given the short time periods most Cannock Chase AONB visitors spend on site (Cannock Chase AONB, 2000; 2012). Despite Kidd *et al.*'s lack of success with their combined image and text based content delivery through use of poster signs, these results can largely be attributable to both study design and researcher error, with these errors easily remedied. The present study used a combined image and text format poster to deliver the intervention content, and used the successful short time span intervention technique used by Liaw *et al.* (2014), Au *et al*. (2015), and Kidd *et al.* (2015), which aided the accessibility of the intervention, as by only requiring a short time to complete, more people were able to set aside this time to voluntarily participate.

As has been seen in the literature discussed, such as in Lee (2017), authors commonly use an experimental approach towards the design of their intervention materials in portraying the salient information as determined by their study topic. In line with these methods, the present study used an experimental design to present the educational information to participants. In conjunction with the educational intervention method, many authors have successfully used a pre and post-intervention questionnaire to directly examine changes in participant knowledge, behaviours and particularly attitudinal changes, as discussed above; based on these findings this present study used questionnaires in this way. As utilised by Au *et al*. (2015), a longitudinal study was found to be highly useful in identifying attitudinal changes overtime, and with a view to not only changes to behaviours, but the length of time a particular intervention is effective for, which was examined in the present study.

From issues discussed by Hutchinson *et al*. (2015), the present study used an adult only population sample, in line with ethical approval received, and from multiple Cannock Chase user groups which reduced selection bias. A control group was included as part of the overall participant sample, to avoid the ambiguity caused by Schwarzer *et al.*'s (2016) incomplete study design, and allow the present study to attribute improvements seen with the intervention used. Lastly, in addition to the null/alternative hypotheses set out in section 2.2.1, some of the references discussed in the literature review for Phase 1 of the present study have also raised important variables that were considered in the Phase 2 intervention. The argument discussed in section 2.1.3 by Buta, Brennan and Holland (2012) that income level from participant occupation was found to have a negative effect on environment place attachment gives rise to the following hypothesis:

Null Hypothesis (H0): Participant occupation is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Alternative Hypothesis (H1): Participant occupation is a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Usage surveys by Cannock Chase AONB (2000; 2012) have both examined visitor frequency as an important variable, in determining how often site users come on to the park. This has given rise to the following hypothesis:

Null Hypothesis (H0): Participant visit frequency is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.

Alternative Hypothesis (H1): Participant visit frequency is a predictor of pro-environmental responses on the New Ecological Paradigm scale.

The collective issues discussed above fulfilling Objective one of Aim two.

2.2.2 Emotion as a Concept

As seen above, there are a great variety of intervention methods that can be employed to try to improve individuals' attitudes and behaviours. Yet as sophisticated and site-specific as they may be made, Park, Turner and Pastore (2008) and Kim, Airey and Szivas (2011) have identified that interventions still lack an emotional content that may yield heightened improvements, for which more research is needed.

Emotions have received a number of classifications in the literature, but largely are defined as a series of events beginning with a stimulus, progressing to an understanding of what is happening, then inclusion of feelings and physiological responses, followed by behavioural intention impulses and behavioural actions (Plutchik, 2001). This definition itself runs similar to the Theory of Reasoned Action, Ajzen and Fishbein's (1980) attitude-behaviour model, which will be used in the present study. This model generally argues that attitudes, norms and perceived control influence behavioural intentions and finally behaviours. Daly, Baumeister and Delaney's (2012) examination of emotions further runs parallel to Ajzen and

Fishbein's model, in that self-control impacts on emotions. Whilst examined as separate studies, these theories and model can be seen to follow a roughly comparable ongoing route of information collection, processing and action, ultimately for the individual's benefit.

Emotions are argued to have evolved over time in animals and humans, and to be responses to important life events or experiences that motivate an individual to take specific action to allow a state of safety and equilibrium to resume. These experiences become connected to certain emotions, i.e. pleasure or fear, to allow individuals to predict future events and avoid those that may be harmful, creating an ongoing loop of experiences followed by adaptational actions based on new and existing information (Plutchik, 2001).

It is argued that an emotion is an ongoing process of adaptation, from the amassing of background experiences and knowledge, to the current actions the individual experiences from others and the environment, that collectively inform and influence the individual's emotional reactions, and future actions going forward. Emotions, or the emotional responses individuals make, from an evolutionary perspective, are responses that provide information which can enable individuals to survive and thrive in varied situations. Emotions are all distinct and include more negative emotions i.e. fear and guilt, to a more positive range such as joy, among many others (Lazarus, 2006). The intensity of emotions are tailored to each situation for the individual's wellbeing, although all are ultimately subjective.

These definitions have highlighted that emotions have a direct and continuous influence upon individuals' thoughts, and via these thoughts can influence action. More than this, emotions are argued to work at a more instinctive level, which

motivate individuals to take specific action for their own safety and wellbeing within all environments. Included in this is the natural environment and parks, where in the specific case of Cannock Chase AONB, previous user surveys of have found that feeling safe on site was a prominent reason for visiting (Cannock Chase AONB, 2000; 2012). However, user surveys have highlighted ongoing threats to this sense of safety and wellbeing in the forms of dog fouling, littering, soil erosion, damage to the park caused by other site users, poor etiquette/anti-social behaviour of other activity groups (Cannock Chase AONB, 2000; 2012) and air pollution (Cannock Chase AONB, 2012), which park managers have listed in their Management Plan as requiring urgent attention.

These issues necessitate an examination of the specific emotions, types of emotional content, and effect measurement scales that have been used within interventions in the literature. This examination is crucial, not only within the bounds of the present study, but also to try to enable additional improvements on Cannock Chase AONB, in addition to those already in operation by site managers. Together, this analysis identified which emotions were felt and most effective in influencing and improving participant pro-environmental attitudes within the present study, and which can be measured to reliably determine their efficacy. This examination will follow in sections 2.2.3. and 2.2.5.

2.2.2.1 Ethical Decision Making

Prior to this examination of the most effective emotional content and measurement scales that used in this study's intervention, together with development of the intervention, it must first be determined why these proposed improvements to

attitudes and behaviours are needed. Existing within Plutchik's (2001) emotional and cognitive process pathway discussed above is the concept of ethical decision making. This is the point at which individuals have received external stimuli of an event, have recalled knowledge of previous relevant experiences with previous and new emotional development, and now must decide how to act, be it positively, negatively or somewhere in between. As discussed in the previous section, user surveys of Cannock Chase AONB have identified some brief examples of this bad behaviour, i.e. littering, dog fouling and anti-social behaviour, alongside good behaviour, that many users feel the park is a safe place to visit (Cannock Chase AONB, 2012). But a clearer definition of what ethical decision making is needed, and more broadly what is it to live a good or bad life.

Within the realm of academia ethical considerations are commonplace and agreed at the outset for all studies, in that they must do no harm to those who are willing to participate in the primary data collection, be it physically, mentally or reputationally. Ethical decision making towards the environment is reasoned to be the organised way that human beings actively distinguish between right and wrong, both cognitively and in subsequent behaviour towards others and nature (De Wet and Odume, 2018). It is further expanded that as users have the ability to impact on these natural systems, this also creates the knock-on effect of a broader level of responsibility, that goes beyond their own well-being and those they care about, but a responsibility to other species, and nature generally. These impacts, if allowed to continue, can contribute to a wide range of issues, and range in scale, one such large scale example being climate change. It is therefore necessary for humans to apply

knowledge and understanding of these real and potential impacts, so as to behave in a more sustainable way (Retnowati, Anantasari, Marfai and Dittmann, 2014).

Sustainability is defined as humans engaging in the ongoing development of social and economic activities, whilst simultaneously ensuring protection of the environment for the present and future, and that the environment can have the capacity to recover from impacts which do occur (De Wet and Odume, 2018). This concept of sustainability has been identified as a key requirement for Cannock Chase AONB by site managers across all user groups, visitors, residents and those in employment on site (Cannock Chase AONB, 2009; 2012; 2014). The issue of sustainability is now increasingly important, given the proposed development of some areas of the park for housing, transport and employment uses which may require use of some of the green belt within the AONB (Cannock Chase Council, 2019). This development, if given approval, will increase the need for sustainable behaviours across the remaining greenbelt of the AONB for the well-being of the wildlife present and its environment as a whole.

Consequently, for these concepts to be achieved in the case of Cannock Chase AONB, user groups are an integral part of this process and must be made aware of the reasons for why ethical and sustainable attitudes and behaviours are important, to encourage them to become more actively engaged, and for sustainability to be accomplished over the long term. This further necessitates the development of an intervention to aid attitudinal and behavioural improvement, that incorporates emotional content so as to maximise efficacy (Park, Turner and Pastore, 2008; Kim, Airey and Szivas, 2011).

2.2.3 Psychological Appeals in Social Advertising

Studies, companies and organisations have historically tried a variety of ways to communicate key information in ways that create an impact with the viewer. An important method shown in the available literature, and used frequently in marketing materials, commonly uses shock tactics which incorporate emotions, i.e. provocation, shame, guilt, disgust, fear (Huhmann and Brotherton, 1997; Nursing Times, 2008; Iacobucci, 2012) and positive appeals, i.e. control, compassion, pride (Septianto and Tjiptono, 2019) hope, gratitude (Hong, 2018) and humour (Lee, 2017). These positive appeals and shock tactics, or emotion-based appeals (EAs), are used to try and influence desired cognitive, and predominantly behavioural changes (Huhmann and Brotherton, 1997; Dossey, 2005; Brennan and Binney, 2009), with the literature identifying that emotional content in marketing materials heightens recollection of the message (Roozen, 2013) and succeeds in improving behaviours (Septianto and Tjiptono, 2019).

The general view of EAs is mixed throughout the literature, as to which individual or combined types of appeal are effective, and of these which are most effective in successfully influencing change. The studies discussed above unanimously acknowledge that EAs are all greatly under-researched. This subsection will examine the efficacy of these different emotion-based appeals, to determine if any are suitable for use in this study's educational intervention.

2.2.3.1 Positive Emotional Appeals in Social Advertising

An examination of the literature has shown that positive EAs have been much less researched than their negative counterparts, in some cases with no classification given as to what positive emotion is being examined. For these reasons, positive EAs will collectively be discussed within section 2.2.3.1. Roozen (2013) compared the use of positive, or warm, EAs with negative, or sad, equivalents to examine message recall efficacy for both not-for-profit (NFP) and for-profit (FP) organisations. A pilot study was first conducted, where a sample of 40 participants were shown three positive and three negative television adverts for NFP and FP brands. A short questionnaire using social demographic questions and a subject-specific scale to test the constructs was completed after each individual advert was seen. The pilot results indicated that the scale had high internal consistency and participants accurately identified the EAs being shown to them, allowing the adverts to be used in the main study.

The main sample group was divided into four groups numbered 1 to 4 containing 50, 50, 62 and 50 participants respectively; 212 participants took part in total, although Roozen does not mention how they obtained this or the pilot samples. Groups were exposed to 20minutes of both positive and negative content shown in different alternating orders between groups, with each organisation featured once only. All groups were exposed to both positive and negative commercials, which were bounded by two parts of a negative film fragment for Groups 1 and 2, and by two parts of a positive film fragment for Groups 3 and 4, and asked to anonymously complete the questionnaire afterwards. Attitudes towards the commercials were measured using 7-point Likert-scale closed questions. Emotional responses and attitudes to the organisations were measured using 7-point semantic differential

scale closed questions. Participants were asked open questions on their knowledge of each commercial's content, recall of what organisations were shown and overall knowledge of all the commercials seen (Roozen, 2013). In the context of this present study, the NFP organisation based results are more closely aligned to Cannock Chase AONB which is a freely accessible park, and is discussed here.

Results showed that emotionally, participants significantly preferred negative commercials for advertising NFP organisations, as participant attitudes suggested the negative content better suited the NFP message, whereas positive content seemed more to make light of a serious issue. Participants were non-significantly more able to recall positive commercials for NFP organisations. Content of negative commercials were more significantly remembered for NFP organisations than positive commercials. Participants had more intention to watch the entire commercial for NFP organisations when negative EAs were used, but not significantly. No significant differences were found between different ages and genders of participants. Overall, Roozen (2013) found that attitudes for NFP brands and adverts improve when they are used in conjunction with the positive film clips.

The results of Roozen's study strongly indicates that negative EAs in educational marketing materials are holistically more effective in changing attitudes, evoking a desired emotional response and being remembered by users, irrespective of the subject. These findings are opposite to those identified by Dens and De Pelsmacker (2010), Lee (2017) and (Hong, 2018). Within the context of product branding in relation to influencing purchasing attitudes, Dens and De Pelsmacker (2010) found that positive EAs used in new product adverts created a significant positive influence on consumer attitudes towards purchasing the product, whilst both positive and negative EAs had no significant influence on consumer attitudes towards purchase

behaviour. In the study by Lee (2017), two separate educational interventions were delivered, one using a humour-based positive emotional appeal, and the other using a fear-based negative EA to improve American university student alcohol consumption habits. It was found that the humour appeal improved binge-drinkers attitudes toward improved behaviour more than the fear appeal, whilst the attitudes of drinkers not participating in over consumption were influenced more by the fear appeal. Hong (2018) also found that use of the positive EA gratitude singularly was a positive and significant predictor of attitude and behavioural intentions in relation to boycotting brands, whilst hope was negatively significant predictor of attitude and behavioural intentions.

Roozen (2013) acknowledges that negative appeals are uncommon in FP marketing, which may have increased their level of effectiveness, by being a largely unknown entity, causing researcher selection bias. NFP results identify that educational marketing largely benefits from negative emotional appeal content, but that positive EAs can also be effective to a smaller extent, with positive attitudinal change achieved when both negative and positive appeals are used together. This suggested that a dual approach was beneficial for the intervention of this present study, where both negative and positive EAs are used in combination to also achieve this optimum appeal use effect. The author further discusses that NFP organisations have more potential to achieve the desired changes in users by connecting to them emotionally, and that participants prefer the message and how it is delivered to match. Roozen (2013) recommends that more research is needed into this, both into a wider variety of combined positive and negative EAs, and across more NFP organisations.

In Septianto and Tjiptono's (2019) study, researchers examined the use of two positive EAs, pride and compassion, within charity adverts and their efficacy in obtaining donations. It was found that the main EA used in an advert was that most felt by participants, with the other emotion felt to a lesser extent; both the appeals were recognised by participants. Participants who personally held more feelings of pride donated more to adverts where this was the dominant appeal, and similarly participants who personally held more feelings of compassion donated more to adverts where this was the dominant appeal. No significant improvements were obtained from the control adverts or based on social-demographic characteristics. This suggests that individuals' attitudes and behaviours are also influenced by their own personal character traits. This outcome is similar to that found by Roozen (2013) and Lee (2017), although arrived at from a different perspective. These studies found that the most effective attitudinal and behavioural change is made via the use of materials containing multiple EAs; whilst they can be all positive appeal types, they are more often and successfully employed as both positive and negative appeals together. In these multi-EA materials, the content compliments the issue discussed, and so these appeals can influence more people by catering to individual characteristics. Septianto and Tjiptono (2019) in some way acknowledge this other perspective and recommend further research into combined negative and positive appeal use, and in other subject areas.

Previte, Russell-Bennett and Parkinson (2015) looked at the effect of positive and negative EAs in an educational poster intervention in relation to promoting healthier and safer drinking cultures in Australia. A single poster was individually combined with six textual messages, three contained positive EAs and three contained negative EAs. Russell-Bennett and Parkinson created a part-experimental

questionnaire design which included social-demographic questions, knowledge of drinking guidelines and participant consumption habits, together with questions that looked at cognitive constructs. Participants were recruited via convenience and snowball sampling from young adults that lived within a chosen Australian city and consumed alcohol, and were shown the six posters with different messages individually whilst completing the questionnaire, although no details have been given of the conditions participants responded in, and if anonymity was maintained. Of a 456 sample, 216 usable responses were obtained. Consistent with the findings by Lee (2017), Previte, Russell-Bennett and Parkinson (2015) found that positive EAs positively influenced cognitive processes towards drinking intentions more than the negative EAs, and that attitudes significantly influenced behavioural intentions. Previte, Russell-Bennett and Parkinson acknowledge that their study is limited by only looking as far as behavioural intentions and not actual behaviours, this is in combination with the issues around interchangeable terminology. Whilst Previte, Russell-Bennett and Parkinson briefly equate intentions to be a yes or no choice, this could arguably be part of the pre-behaviour evaluative process, which is the definition of attitudes given in section 2.1 of the present study, and also what the authors agree “attitudes” to be. Previte, Russell-Bennett and Parkinson go on to recommend further research into EAs used in interventions, their efficacy over time, and their efficacy across a more demographically varied sample.

The majority of studies that examine these appeals are within the areas of either alcohol consumption, or a financial context, i.e. purchasing and charitable donations, and not in a parkland setting, creating a gap in the knowledge. Whilst positive appeals have been shown to be effective in persuading participant attitudinal change across subject areas, their success is not guaranteed across all subjects or

participants. However, this partial success may be improved by use of an intervention containing both positive and negative elements together, which combined, has the potential to connect with more individuals; a mixed appeals approach was suitable for the present study. Considering positive appeals the following hypotheses were generated:

Null Hypothesis (H0): positive appeals will not have a positive effect on respondent pro-environmental attitudes.

Alternative Hypothesis (H1): positive appeals will have a positive effect on respondent pro-environmental attitudes.

2.2.3.2 Fear Appeals in Social Advertising

Conversely to those already discussed above, negative EAs are much more researched within the literature and have received much more classification between the different emotion types, as will be discussed here and in the proceeding three sections. For these reasons negative EAs will be discussed individually in the following sections. A number of studies have examined fear appeals in social advertising as a mode for positively influencing attitudes and behaviours, however, these studies are almost entirely are examined outside the subject of the environment and parklands, as has been seen in the studies discussed in section 2.2.3.1.

Fear appeals are frequently used to persuade individuals towards a certain attitude and behaviour, and often use severe and intense situations to draw attention to their message (Beitelspacher *et al*., 2012). Fear appeals, or threat appeals, are defined

as a negative emotion triggered by a predicted threat that is seen to be significant and important to the individual (Easterling and Leventhal, 1989, cited in Terblanche-Smit and Terblanche, 2009; Beitelspacher *et al*., 2012), which researchers aim to use towards behavioural change. Reactions to these appeals can be segregated into the following subcategories: psychological and emotional (Beitelspacher *et al*., 2012); social, and are associated with threats related to social approval (Brennan and Binney, 2009), and physical, which are associated with threats that can potentially harm the body (Brennan and Binney, 2009; Beitelspacher *et al*., 2012), with the overarching emphasis being that the threat is external to the individual and not their fault, and as they have little/no control over the events can respond by avoidance of the situation (Huhmann and Brotherton, 1997).

Beitelspacher *et al*. (2012) examined fear appeals in the context of their efficacy in trying to change USA citizen shopping perceptions and intentions. In their experimental design, a one paragraph textual fear appeal was given to two groups of participants, highlighting potential threats and secretive capabilities surrounding the use of radio frequency identification (RFID) technology in obtaining data on and monitoring consumer activities, and how this appeal can affect customer-supermarket relations. Whilst Beitelspacher *et al*. are not clear on how exactly the sample was generated, 400 participants were recruited and grouped as follows: Group 1, 310 participants, received a pre-test, the fear appeal and a post-test. Group 2, 30 participants, received a pre and post-test. Group 3, 30 participants, received the fear appeal and post-test, and Group 4, 30 participants, receiving the post-test only. Here, Groups 2 and 4 were used as a control. Emailed invites to the online survey were sent to participants, where the fear appeal paragraph was read first,

followed by a 24 item questionnaire that was created by Beitelspacher *et al*. and based on items used in existing studies, all with 7-point Likert answers.

Whilst there is no mention of specific group results in their findings, the fear appeal negatively influenced attitude perceptions which in turn negatively influenced participant behavioural intentions. Behavioural intentions were found to be strongly and positively influenced by commitment to the supermarket chain, indicating that whilst fear appeals do have some success in changing perceptions, pre-existing strongly held perceptions can much more greatly reduce the efficacy of the appeal. It should also be noted that Beitelspacher *et al*. interchangeably use behavioural intention terminology with that of behaviours, rendering their findings uncertain as to what exactly they represent. A largely criticised USA based supermarket chain was used as the study's focus, which Beitelspacher *et al*. agree has reduced the reliability of their results; they acknowledge that if the study was repeated using another supermarket, that different results could be generated. Beitelspacher *et al*. (2012) have not directly examined respondent attitudes, but suggest that their perception results can indicate potential changes in attitude and behaviour, limiting attitudinal change certainty that the study can offer. It was acknowledged that ultimately, fear appeal efficacy depends on the consumer's prior experiences and how deeply these have influenced their cognitions. Further research is needed to determine the optimum conditions for fear appeal efficacy, such as appeal content and delivery frequency to respondents.

Terblanche-Smit and Terblanche (2009) examined the use of fear-based HIV/Aids advertising in promoting improved attitudes towards behaviour among 18-24 year old adults in the Western Cape of South Africa. An initial pilot study of 19 printed and television adverts on the subject were shown to an unspecified sample group who

rated them on a scale of low to high for level of fear evoked. Feedback informed the selection of three of each format, one low, one medium and one high fear level were chosen for the intervention. A convenience sample of 360 participants were equally separated into six groups, where each group was asked to complete a pre-intervention questionnaire, then view their group's advert, followed by completion of a post-intervention questionnaire to examine any attitudinal changes. Both questionnaires were identical, and had been created experimentally using existing unspecified scales as guidance.

It was found that respondents felt more fear when exposed to television adverts; which Terblanche-Smit and Terblanche acknowledged may be due to these adverts combining images and sounds to deliver their message, compared to the solely visual input from the printed adverts. Generally, the least fear was experienced in low fear adverts, whilst the most fear was experienced from the high fear adverts. Overall, respondents attitudes were significantly and positively influenced by exposure to medium and high fear television adverts, and that there were no significant differences in attitudinal change between these two levels; however, Terblanche-Smit and Terblanche give no specific results for print adverts preventing comparison of these results or further judgements on the efficacy levels of print adverts at all. Terblanche-Smit and Terblanche (2009) also found that medium fear appeals were most effective in influencing black respondents, whilst high fear was most effective for mixed race and white respondents. It should be noted that whilst fear EA results were provided for three ethnic groups of the study site population, no data was given as to the Indian/Asian group, which may be inherently symptomatic of the sampling method used.

These findings show that positive attitudinal change can be achieved through use of fear appeals in educational interventions, and that medium fear levels can be equally as effective as high levels generally. For full efficacy, Terblanche-Smit and Terblanche argue that fear appeals must be tailored to individual respondents based on their social demographic details, solely researched in this case through ethnicity. Terblanche-Smit and Terblanche (2009) also noted that despite the seriousness of the subject area, too much of this type of education can cause information fatigue, as well as excessive fear appeal exposure causing increased personal fear in respondents and feeling they cannot control the subject issue. Terblanche-Smit and Terblanche conclude that future research into targeted fear appeal education campaigns is critically needed to avoid negative attitudes and feelings of information fatigue arising, in that targeted adverts may have both more impact, and more lasting impact. Despite the promising results, the low/medium/high rating of fear, or that of any other emotion in an EA is ultimately subjective, and can vary between individuals. No mention is made of the adverts used in this study, preventing any form of content analysis, but their results can be used as an indicative guide for future intervention design.

Jansen and van Schaik (2018) also identified that fear could have a positive influence on attitudes in their longitudinal comparative study that examined the use of a strong fear appeal one paragraph message, a weak equivalent and an EA-free control message. 768 participants were separated into one of these three groups, where they received the message and then the questionnaire both online. One month later participants received an identical follow-up questionnaire; the control group acted as a baseline in this study design. It was found that the strong fear appeal had the strongest and significant positive influence on attitudes and had the

highest predictive ability, as compared to the control group from the first questionnaire's results. These results were mirrored in data collected from the second questionnaire, where Jansen and van Schaik acknowledged that these improved attitudinal effects were a lasting result of the fear appeal intervention. However, attitudinal improvements were found to have no influence on behaviours, which was argued to be due to participants not believing that the fear appeal message could actually happen, that it did not pose a sufficiently high threat. This finding strongly suggests that fear appeals are vastly problematic in terms of efficacy, as was also seen through the results by Terblanche-Smit and Terblanche (2009), that fear appeals are highly subjective, and despite experimental efforts to self-determine high fear messages and have these somewhat validated by pilot studies, there is no guarantee that the sample population will agree with this determination, rendering the possible outcomes hit and miss. Jansen and van Schaik conclude that fear appeals are all too often not appropriate for creating improvements to behaviours.

Brennan and Binney (2009) have looked into fear appeals within the context of public advertisements in their national scale qualitative study across Australia. A 270 person sample group of recipients of government welfare payments were contacted, of which 120 agreed to participate. The research team held semi-structured interviews where individuals were asked to recall and discuss any adverts they remembered that contained a fear appeal, including their attitudes to these appeals and how they felt about them. All responses were transcribed and examined for common themes.

It was found that respondents were more likely to remember adverts that used fear appeals, in terms of fear for others and themselves. Viewers felt more threatened

than encouraged into complying with accepted behaviours and rules by scaring them about potential health, social and legal risks associated with their current behaviours. Respondents discussed that the more confrontational the message, the more realistic the portrayal must be in order to be influential in changing attitudes and behaviours, so that respondents can believe the scenarios could happen to them and have real life connotations.

However, it was noted that frequent repetition of highly graphic and disturbing adverts which respondents had a very close relationship to resulted in emotional trauma. This trauma elicited an escape response to the message and even anger towards it, instead of engagement with it to influence more positive attitudes and behaviours. These findings of author termed emotional-burnout are similar to the issue of information fatigue as found by Terblanche-Smit and Terblanche (2009), and to the findings of Uzzell (2000), in that individuals may perceive the extreme severity of the information they are receiving, resulting in feelings of being overwhelmed and that any action for change on their part would have no beneficial effect. Overall, Brennan and Binney (2009) found fear appeals to be ineffective in influencing positive attitudinal and behavioural change, and even counterproductive if used to excess. Further research was recommended into whether fear appeals are most effective in a generic or environment-specific format, and if they could be enabled to have a more lasting effect by inclusion of coping strategies, which provides further support for the recommendations of Roozen (2013) and Septianto and Tjiptono (2019) to use a mixed EAs approach of both positive and negative appeals together.

Packer, Ballantyne and Hughes (2014) examined the established pro-environmental attitudes and experiences of Chinese and Australian tourists towards nature and

wildlife. Via the use of their experimental questionnaire based on both academic and non-academic question scales, Packer, Ballantyne and Hughes obtained 525 usable responses, 258 from Australian and 267 from Chinese tourists. It was found that Chinese tourists had more negative attitudes and more fear towards wild animals and their welfare, together with less experience of these animals, as compared to the Australian tourists. Conversely, Chinese visitors held more positive attitudes holistically towards the environment, the impacts upon it and the need for its protection, together with some aspects of animal welfare.

Whilst this study does not aim to change or improve tourist attitudes, solely reporting on existing attitudes, Packer, Ballantyne and Hughes (2014) have identified that fear has a negative influence on respondent pro-environmental attitudes, along with further potential influences to attitudes from cultural components and previous experiences. That said, Packer, Ballantyne and Hughes acknowledge that differences between the two participant groups, i.e. education, wealth, characteristics of their visit and translational issues, may have contributed to these reported attitudes, reducing the reliability of their results.

In their conclusion, Packer, Ballantyne and Hughes (2014) allude to future directions for study in this area, of not trying to increase knowledge and awareness of topics that a group within a population is already familiar with, but to propose ways to prevent these negative impacts, i.e. through the use of educational interventions. However, this recommendation is given in the manner of a range of group specific interventions being delivered to each group instead of a one-size-fits-all approach, this whilst ideal is not always possible. In their conclusion, Packer, Ballantyne and Hughes (2014) recommend that further research is needed on providing education

strategies to positively change participant willingness towards more environmental behaviours.

The existing literature into fear appeals has largely identified them to be ineffective in improving attitudes. Despite, the positive results found by Terblanche-Smit and Terblanche (2009), these may potentially be more pronounced due to the personal health benefits attitudinal change can achieve in terms of the study's subject area; this present study does not deal with user's personal health but focuses on the environmental wellbeing of Cannock Chase AONB. Such positive results may be limited within this context, as shown by Brennan and Binney (2009), as their study's respondent feedback covered a variety of subject areas, i.e. unemployment, unsuccessful social relationships and legality issues, besides personal and loved one's wellbeing, and found fear appeals to be ineffective overall. Based on these results, fear appeals were not used in the educational intervention for the present study.

2.2.3.3 Guilt Appeals in Social Advertising

To the best of the author's knowledge, guilt appeals have scarcely been examined in the literature on their efficacy in influencing attitudes and behaviours, and not at all within parkland environmental studies to date.

Guilt has been defined as a set of negative emotional feelings such as regret and self-induced blame, where individuals perceive the penalties afterwards/or possible penalties preceding the act of violating personal internal standards of appropriate behaviour, or the penalties from the failure to act on behalf of others. Emphasis is on

oneself being at fault and is exhibited as an internal response, but as the individual has some, or more extensive control over the event(s), this can encourage them to try and correct the situation (Huhmann and Brotherton, 1997). Guilt is a personal and self-referencing feeling whereby the person feels responsible for the problem but has freedom of choice on how to respond (Brennan and Binney, 2009); it regards precise actions that can potentially be amended or forgiven (Dossey, 2005), and that guilt is the personal recognition that a person has disobeyed or broken an ethical, moral or social principle (Kruger *et al*., 2015). Consistent with the cognitive variables discussed earlier, Huhmann and Brotherton (1997) warn that negative emotions have sometimes been confused, or used interchangeably in the literature, or that whilst trying to evoke one emotion, researcher intervention has backfired and evoked another more damaging emotion (Brennan and Binney, 2009), so that care must be taken to ensure accurate application of specific EAs in interventions.

Brennan and Binney (2009) examined the use of guilt appeals in social advertising. Using their same experiment, as discussed in 2.2.3.2, it was found that guilt appeals were noticeably different to fear appeals, as they were more encouraging of respondents towards a voluntary compliance of a moral obligation to others, particularly those less fortunate than themselves. Respondents exhibited feelings of empathy, affinity and sympathy with guilt appeals, which also encouraged them towards positive attitudinal and behavioural change. Messages that encouraged respondents to accept personal responsibility for change were the only successful modes for actual change within the study. The issue involved with these appeals being successful is that guilt messages have been overused in society in many aspects of people's lives, including finance, body image and parenting. It was found that many respondents have begun resisting guilt appeals due to the sheer volume

they frequently receive. As with all the emotion based appeals examined in their study, Brennan and Binney argue that guilt appeals are subjective, and as they are felt privately can potentially be ignored by individuals, and non-compliance attitudes and behaviours can be justified in some way. Similarly to the previous discussion of fear EAs, guilt EA results indicated that participants can feel overwhelmed by exposure to high volumes of guilt EAs, rendering these interventions useless, as identified by Uzzell (2000).

Respondents fed back that guilt appeals would be more effective if combined with positive information on how their contributions are helping solve the issues at hand. From these findings, Brennan and Binney (2009) argued that guilt appeals are successful in influencing change providing the guilt message is not overused, and if potentially combined with positive bigger picture feedback, although they do not provide any discussion or examples of the guilt levels used in either the successful or unsuccessful adverts. Whilst Brennan and Binney argue the benefits of a mixed appeal approach, their discussion of guilt appeal results is to a minor extent like that of a positive appeal; study feedback described guilt appeals as evoking sympathy for others, which itself is akin to compassion, of which the present study has examined within positive EAs in 2.2.3.1. These results suggest that even though guilt is overarchingly seen in the literature as a negative EA, that it may also begin to incorporate positive aspects internally in participants. Ultimately the intervention's design will provide controls on how the guilt EA is received and acted upon. Future research recommendations were made to determine whether guilt appeals are most effective in a generic or environment-specific format.

Kruger *et al*. (2015) investigated the types guilt appeals in use, which can be indirect, whereby subtle hints are given in the message to induce guilt feelings, or direct

where strong messages are given which may include use of the word guilt in the message. Within a nation context across the USA, Kruger *et al*. examined the relationship between exposure to pharmaceutical adverts and attitudes deriving from feelings of dietary and activity-related guilt through use of a subject related questionnaire which gathers data on the nations' health along with demographic data and media consumption habits.

The study identified a small but significant association between exposure to these adverts and development of feelings of exercise and dietary guilt, whereby increased exposure correlated with an increase in guilty attitudes. It was found that increased levels of exercise and food guilt were linked to negative attitudes and behaviours in engaging with healthy exercise and diet, and in the extreme led to indecisiveness, lower desire for self-control and obsessive compulsive behaviour, suggesting that excessive guilt appeals can negatively affect respondents psychologically. Kruger *et al*. (2015) argue that limited use of guilt appeals can induce positive attitudes, as was found by Nguyen (2017), but that over use/over frequent use can have detrimental effects on attitudes, as mirrored in the findings by Brennan and Binney (2009). Kruger *et al*. (2015) recommend that more research is needed into the effects of information containing guilt appeals upon attitudes.

Huhmann and Brotherton (1997) conducted a two year content analysis of 2769 advertisements in USA magazines to determine the level and manner that guilt appeals are used in. 153 were found to contain guilt EAs with some containing more than one guilt appeal per advert; this was more than the number of adverts that used fear EAs. Conversely, almost twice as many adverts used positive humour EAs. Guilt appeals were frequently employed in information-based adverts that were used in an educational application, and only rarely used in entertainment-based adverts. These

results thus far match the results seen in the literature, of the efficacy of positive EAs in creating attitudinal and behavioural improvements, and the much reduced efficacy of fear appeals, together with increased usage within educational interventions, as opposed to non-education subjects. Huhmann and Brotherton argued that entertainment-based media is often used for hedonistic escapism, which does not match with adverts that confront individuals with real life issues that need remediation or resolution, for which the guilt EAs are directly used.

Huhmann and Brotherton argued that three types of guilt appeal were used: reactive guilt, to encourage rectification of a previous mistake; anticipatory guilt, to encourage avoidance of a potential future wrongdoing; existential guilt, to encourage rectification of a perceived imbalance between one's own wellbeing and the reduced wellbeing of others. Overall, anticipatory guilt was by far most used, which Huhmann and Brotherton (1997) credited to the forward-looking nature of this type. This would match with what has been found from the literature, in that guilt is defined as individuals having control over what action to take and the opportunity to make things right, which reduces or even prevents feelings of helplessness, and that their actions can make a difference should they choose to act.

Within these three types, a further four types of textual guilt statement were used to encourage future compliance: factual, where facts are used as the message; actions, which confronts the reader with their transgression(s); suggestions, which recommends how individuals should/shouldn't act; questioning, where the message is framed as a personal question direct to the individual. Huhmann and Brotherton (1997) identified visual messages as being frequently used in adverts as they are both attention grabbing and increase the advert's impact, and help produce perceived links between the information received and the participant's own

experience of the situation, often trying to evoke sympathetic feelings through images of babies or animals. The textual and visual elements in these guilt appeals are commonly used together, as are text only messages; visual only guilt appeals were deemed too difficult to understandably convey the message. Huhmann and Brotherton (1997) argued that the effectiveness of an appeal largely depends on the type used.

Overall, it was found that the amount of guilt appeals used was comparable with many other types of emotional appeal, identifying their importance in encouraging attitudinal and behavioural change. Huhmann and Brotherton (1997) recommend that more research is conducted into guilt appeals, to examine which guilt type and which statement type are the most effective, and the efficacy of a visual component in these appeals to change attitudes. Additionally, more research is needed into other media types, as this study only examined paper copy advert delivery. Whilst Huhmann and Brotherton have provided exact details on textual guilt message identification, only a few general details have been discussed for the visual components of these messages, despite approximately 46% of the adverts in their content analysis containing visuals that formed part of the guilt message. A common feature of these appeals is that they are often used in multiples within the same advert, as this present study has identified a number of potential environment issues at Cannock Chase, this multiple appeal method was suitable for use in the intervention of the present study, and given the positive results recorded in other studies, guilt appeals were used in the intervention of the present study.

Based on these previous study findings, a moderate guilt appeal was incorporated in to this study's intervention to examine its efficacy on influencing more pro-environmental attitudes.

Null Hypothesis (H0): guilt appeals will not have a positive effect on respondent pro-environmental attitudes.

Alternative Hypothesis (H1): guilt appeals will have a positive effect on respondent pro-environmental attitudes.

2.2.3.4 Shame Appeals in Social Advertising

Shame appeals on attitudinal change have seldom been examined in the literature, and not at all within parkland environmental studies. Of the few studies to date, shame has been discussed as an emotion felt by individuals when significant others perceive their publically offensive behaviour, with consequences that are also public but that shame only occurs if individuals care about other people's opinions (Brennan and Binney, 2009); that shame is of seeing our core self in the most negative way from the viewpoint of others and of having lost their respect (Dossey, 2005), and similarly to guilt appeals, shame emotions have emphasis on oneself being at fault due to reasons of failure to act or just failure (Huhmann and Brotherton, 1997).

As previously discussed in 2.2.3.2 and 2.2.3.3, Brennan and Binney's (2009) EAs study found that guilt and shame are linked, as personal guilt must be felt in order for a more public feeling of shame to be felt. Respondents then only felt ashamed if firstly they cared what others thought of them, and secondly if the people they are close to witness their public behaviour which goes against this groups' principles; in this situation, this shame feeling can be alleviated through reparative and positive behaviour, although individuals may feel they have no choice in having to act to

correct the issue. Brennan and Binney (2009) discuss that despite the guilt link, shame is more closely related to negative emotions such as embarrassment and humiliation, so has deeper, lasting and even damaging psychological effects that requires more effort to relieve. Though as with guilt, respondents will protect themselves from shame by rationalising it in terms of acceptability, particularly through societal norms. The study found that respondents viewed shame appeals as contributing to a sense of depression and hopelessness towards the needed improvements, debilitating them and therefore being ineffective in creating the attitudinal and behavioural change that advertisers sought.

Despite these drawbacks, shame appeals were not viewed as creating the same level of escape reaction to that experienced through fear appeals; potentially, a more effective appeal would be to evoke positive emotions in users for their improved behaviour instead. Brennan and Binney noted that existing theory into shame appeals in information advertising is underdeveloped and that more research is needed into this, and into whether shame appeals are most effective in a generic or environment-specific format. Despite this call for further research, the results of Brennan and Binney's (2009) study are concerning in what they do achieve, in that shame EAs have little or no influence on improving attitudes and behaviours of participants, but that shame actively prevents those improvements through its damaging psychological effects. Not only this, but the public nature of shaming may have further legal implications for researchers that use it, particularly if individuals are publicly highlighted.

Dossey (2005) discusses that attitudes towards shame may have been changed in part over recent years by a shift in advertising content, from more negative previous portrayals of issues society may deem shameful, towards more narcissistic

portrayals that remove and negate feelings of shame, allowing negative attitudes and behaviours to increase. Dossey argues that advertisers and educators must be careful of the amount of shame they use, as it has been shown that excessive induced feelings of shame can cause psychological, physical and behavioural ill health, whereas guilt appeals were found to have no effect on participant health. The author notes that shame is that which is needed for improvement, and can help encourage balance and individual self-correcting attitudes and behaviours, however Dossey does not give any indication or examples as to what constitute a moderate and healthy amount of shame in advertising.

Amonini, Pettigrew and Clayforth (2014) examined the use of shame EAs within a televised advert to change behaviours of smokers, which was broadcast nationally across Australia. Following an initial mixed methods pilot study to determine common themes in instigators and barriers to smokers choosing to quit and failing, the advert was created which focused on how smokers were perceived by others around them and how they perceive themselves. Through use of random sampling, households were contacted by phone for participant feedback on the advert three weeks after it had finished airing. It was found that the intervention had a significant influence on improved behaviours, with no significant differences between social demographic groups.

Whilst these results are positive, Amonini, Pettigrew and Clayforth (2014) acknowledge that the number of smokers in this population is already a minority that is shrinking, which they suggest could be due to a number of other factors and not the intervention itself or from the use of shame. These other factors could include: increased cost of smoking/smoking already being viewed as socially unacceptable/smokers changing to equivalent non-tobacco products, along with

other possible reasons; this was verified by the lack of a control group in the study. Despite Amonini, Pettigrew and Clayforth arguing that shame could successfully be used to influence other socially unacceptable behaviours, and if the behavioural improvements of the study are attributable to the intervention and use of shame EAs, this is no guarantee that shame EAs can be successful across subjects. Amonini, Pettigrew and Clayforth's (2014) study focuses directly on individuals' health, which they have a personal interest in, especially given the well documented medical evidence of the harmful effects of smoking. This same personal aspect may not exist within the different subject area of the present study, as the attitudinal and behavioural improvements sought benefit the park directly, and indirectly less so for user groups, of which users could choose to visit another park should they perceive Cannock Chase to be negatively affecting their personal health in any way, and not necessarily change their behaviours. Nguyen (2017) also found similar results in their study on binge drinking amongst university undergraduates in New Zealand, in that shame appeals positively influenced behaviours. Whilst this study did verify through use of a control group that the shame EAs did directly influence behaviours, again, this was shown within the context of participants own direct personal health interests, with no guarantee that they could be successfully used across non-health topics.

These studies into shame focus upon the defining point that this emotion is felt publically. As discussed in 2.2.1, this study used an educational intervention with pre and post-intervention questionnaires delivered online to individual participants in line with anonymity conditions as recommended above, thus preventing shame from being effectively tested on its potential to improve pro-environmental attitudes. More importantly, whilst there is some argument for the benefits of using some shame

appeal within the educational intervention of this study, these improvements to attitudes and behaviours are seen in personal health subjects and not at all in environmental topics. There are distinct and inherent risks in using shame EAs, particularly from Dossey's account of documented health issues in participants compelled to feel shame. These same health issues have not been associated with any other types of emotional appeal. Discussed by Brennan and Binney (2009), all EAs are ultimately subjective, and whilst Dossey argues that a quantity of shame is beneficial, albeit an unexplored and undefined quantity, this study's respondents may deem the amount used in the educational material as excessive, prompting the risk of health issues previously examined and negatively impacting on the aims of the intervention. Based on these findings, shame appeals were not used in the present study's intervention.

2.2.3.5 Disgust Appeals in Social Advertising

As with the other EAs discussed previously, disgust appeals have rarely been examined in the literature, and to date not at all within influencing attitudes and behaviours in a parkland and environmental studies context. Disgust has been defined theoretically as the central view that it represents a feeling of instinctual revulsion to an unpleasant object or viewpoint from any of the senses, and defined in lay terms as a term indicating anger as well as repulsion (Shimp and Stuart, 2004); as a rudimentary emotion that is produced when individuals encounter a moral and/or physical contaminant, stimulating a distancing response towards the offensive item (Vartanian, 2010), and a reaction to avoid a personal contamination threat (Powell, Jones and Consedine, 2019).

Shimp and Stuart (2004) examined the efficacy of disgust appeals in shaping attitudes and influencing behavioural intentions in adults through the use of television adverts within the context of fast-food restaurant advertising. In the quantitative first stage of their study, Shimp and Stuart tested theoretical disgust. Two versions of an advert were created, the experimental group of the sample received the version briefly containing a theoretically disgusting image, of a piece of raw meat, whilst the control group were shown the advert without the raw meat image. It was found that the advert containing the disgusting image did influence participant attitudes towards negative behavioural intentions. To ensure reliability of findings, the study was then repeated to new and smaller participant groups using the same advert as discussed, but this time containing a full raw animal body image for the experimental group, and again without the body image to the control group; this study also found that the advert containing the disgusting image did influence participant attitudes towards negative behaviour; as was found by Powell, Jones and Consedine (2019) that when individuals associated feelings of disgust towards atypically shaped fruit and vegetables, this negatively impacted on their behavioural intentions to purchase them.

In the qualitative second stage of their study, Shimp and Stuart (2004) tested the Lay meaning of disgust. A 25 person group of participants from the pool of stage 1 participants was selected and asked to discuss two examples of advertising they have personally encountered that they deemed disgusting. Of the numerous topics discussed, one of the most frequently mentioned was the depiction of human and animal waste. This may potentially be an issue for the educational intervention of this present study, as dog fouling has been identified as a common feature of dislike amongst Cannock Chase users. Dog fouling, soil erosion and littering, along with

many other forms of onsite damage are current issues that have also been witnessed onsite, and formed part of the present study's educational intervention.

Shimp and Stuart (2004) noted that whilst the use of certain images can be used with the intention of creating positive attitude and behavioural changes, these images could be deemed disgusting and even offensive by users, creating the opposite attitude and behaviour changes to those desired; these negative changes were found to have occurred after a single exposure to the imagery. Shimp and Stuart go on to discuss that other appeals, i.e. guilt and fear, are more deliberate in their aims to create associated responses, whereas disgust is more unintentional and even the result of humour EAs gone wrong. However, the issue that some advertising is deemed disgusting places a reduced value on the subject being advertised. It is argued that overall, disgust, along with other forms of advertising, are not conceptually clear and are all ultimately subjective to individuals. Given these findings, care was taken to avoid using any information that is overly disgusting within the Layperson definition, during phase 2 of this study, to avoid influencing any negative attitudinal and behavioural changes and counteracting the aims of the intervention. Shimp and Stuart acknowledge that disgust appeals are a largely unstudied area of emotions in informational advertising, and that more research is urgently needed.

Vartanian (2010) looked at the attitudinal perceptions of American and Australian undergraduate students towards obese people and how these perceptions are effected by textual messages. The first and second tests of the study were directed towards American students who were asked to complete an identical experimental online questionnaire of author-developed questions and questions taken from two subject related scales. The questionnaire asked sixteen different groups of people in

terms of disgust felt towards each group, where groups were made up of a cross section of society, including different ethnicities, genders, professions as well other groups such as those who were obese, smokers and lottery winners, among others. The questionnaire of the first test listed the obese group as “obese people”, whereas the wording of the second test used “fat people”; the questionnaire in tests one and two both asked respondents to rate their answers to three questions:

1. How favourable is your attitude toward (group)?

2. How much do you believe that being a member of this group is under the individual’s personal control?

3. How disgusted are you with (group)?

The third test was directed towards the Australian students who were asked to rate their answers to statements in A) the willpower subscale of Anti-fat Attitudes scale, B) a single-item measure of disgust toward fat people, ‘I find fat people disgusting’, C) the dislike subscale of the Anti-Fat Attitudes scale and D) a single-item measure of preference for thin people over fat people, ‘I strongly prefer thin people to fat people’.

Across the study it was found that disgust is a strong predictor of negative attitudes towards a given group, which can lead to weight related behavioural bias, having also been found by Cheng Hong (2018) who identified that disgust has a significant and negative impact on attitudes and behavioural intentions towards boycotting brands. Vartanian (2010) found there was no significant difference between the terminology used in their three tests, between use of “obese” and “fat”. However, Vartanian acknowledges that the homogeneity of their sample may have biased the

results. It is discussed that cultural trends may be significant influences on attitudes and behaviours, which dependent on the study topic may hinder/increase the efficacy of any interventions, and these effects may change over time with the shifts in cultural trends.

Ruby and Rozin (2018) examined the beliefs held by American and Indian participants of insects as an acceptable food source for humans. Of 692 participants, 201 Indian and 275 American participant responses were usable, from the experimental questionnaire all were asked to complete. Similar to the findings of Vartanian (2010), it was found that culture is a significant influence on reported levels of disgust felt, and disgust was found to be the strongest predictor for acceptance and behavioural intentions. Gender is also a strong influence though results for this are more inconsistent.

Ruby and Rozin (2018) argue that once individuals have overcome their first feelings of disgust, they will be more used to the object of disgust, accept it and have more favourable behaviours as a result. These findings are particularly relevant for Cannock Chase AONB, which has issues with dog fouling and littering, for which inclusion of a disgust EA in an intervention holds potential benefits. Ruby and Rozin have noted that their questions' four answer statements scale may have affected the result validity through the use of too vague and subjective terms. An examination of the literature has shown the Likert answer scale to be wide spread in its use and ability to collect data, which may have yielded more accurate results here. Ruby and Rozin (2018) recommend that future studies use a gradual and moderate introduction to topics that may be considered disgusting, to allow participants to get used to and adapt to the topic and become more willing to improve their behaviours towards it. They also recommend future studies should use more varied sample

groups to be more representative of the population, and the inclusion of images in informational material to aid in the adaptation process.

The literature on disgust strongly links this EA as directly influencing negative attitudes, behavioural intentions and behaviours. The present intervention deals with issues, which in terms of the definitions already discussed, could be deemed disgusting by respondents, i.e. dog fouling and littering, among others. Vartanian (2010) identified that respondents link negative attitudes and behaviours in others, to these others having the issues within their control to change. As argued by Ruby and Rozin (2018) of the benefits to behavioural change from gradually making participants aware of a possibly disgusting subject, this may already have naturally occurred for users of Cannock Chase, having likely encountered issues such as dog fouling and littering on site on each visit. However, if this should not be the case, a moderate approach must be taken towards disgust EA inclusion within the intervention, as recommended by Ruby and Rozin (2018), to prevent the aims of the present study's intervention being negatively impacted. The limited available literature has often shown disgust EAs effects on purchase choice, a topic which may not be fully comparable to personal behaviour choice when visiting parkland areas. The lack of literature on this appeal only gives a partial insight into its effectiveness in influencing attitudinal change, and with the absence of subject specific research within the environment and in parklands give this present study exploratory scope to examine how disgust may affect users' pro-environmental attitudes towards behaviour. Upon this basis, the present study incorporated disgust into the intervention.

Null Hypothesis (H0): disgust appeals will not have a positive effect on respondent pro-environmental attitudes.

Alternative Hypothesis (H1): disgust appeals will have a positive effect on respondent pro-environmental attitudes.

2.2.4 Content Analysis of Existing Educational Poster Campaigns

A content analysis is a systematic, replicable and detailed examination of existing subject-relevant communication materials, such as textual or visual sources, allowing the researcher to identify and code commonalities, biases and more broadly what the data means, so that valid interpretations can be made (Riffe, Lacy and Fico, 2005; Assarroudi, Nabavi, Armat, Ebadi and Vaismoradi, 2018; Sæþórsdóttir, Hall and Wendt, 2020). Interpretation of the data allows themes to be systematically identified and coded. Content analyses can be separated into two main types, qualitative and quantitative which follow the same principles as other forms of qualitative and quantitative data collection.

Qualitative analyses examine the data in more detail, allowing positive and negative themes to be interfered, including emotions. The drawbacks to this being that the method is very time consuming, and limits how much data can be analysed within study timeframes, data quantities often ranging from the tens (Assarroudi, Nabavi, Armat, Ebadi and Vaismoradi, 2018) to hundreds (Wood, Patterson, Katikireddi and Hilton, 2013). Qualitative content analysis can be further separated into three methodologies, the first is the inductive approach which looks for similarities and differences in the data to categorise the data and develop a theoretical understanding of the subject. However, this method may limit the study to an analysis of only surface issues, or only those which the researcher is already aware of. The second, the deductive approach, goes in the opposite direction and tests the

inferences of existing theories against the collected data, although this may result in only existing theories being developed. The third, the abductive approach incorporates both the inductive and deductive approaches into a mixed methods, that moves backwards and forwards between data and theory to obtain a more thorough understanding (Graneheim, Lindgren and Lundman, 2017).

Quantitative analyses focus on more broad trends and frequencies over larger amounts of data, often ranging from the hundreds (Ash, Agaronov, Young, Aftosmes-Tobio and Davison, 2017) to the thousands (Steffan and Venema, 2019). The drawbacks to this being that no detail can be obtained that may identify other relevant issues simultaneously occurring that may need to be considered, preventing theories from being tested or developed. Similar to other data collection methods, both qualitative and quantitative methods can be used together in a mixed methods approach to achieving a more thorough analysis of the data (Steffan and Venema, 2019).

Previous studies vary on the number of sources used within their content analyses, Jenner, Jones, Fletcher, Miller and Scott (2005) used 69 posters and Banerjee and Greene (2013) used 50 posters. Whilst other studies have used 85 online topic threads containing 1,138 messages (Mo and Coulson, 2008), 311 transcribed phone calls (Rae, Simon and Braden, 2010), 153 TV adverts (Huhmann and Brotherton, 1997) and 503 feedback comments (Afzalan and Sanchez, 2017). This numerical variation shows that content analyses are wholly dependent upon the quantity of subject-relevant data available to them.

Due to the cultural and legislative differences of both non-UK parklands and non-AONB status UK parks as examined by UKELA (2017), posters from these types of sites have been eliminated from the available data list. UK AONB sites directly correlate with the subject site of the present study, therefore posters from these UK AONB sites will be used within the present content analysis. As seen in Cannock Chase AONB (2012), almost all participants came from mainland UK, with only one travelling from Northern Ireland, with no mention of Cannock Chase receiving visitors from overseas in Cannock Chase AONB (2000). Based on these findings and to maintain consistency between geographic AONB site inclusion into content analysis and geographic locality of visitors to Cannock Chase AONB, this study will focus on posters from mainland UK AONBs. As the term AONB is not commonly used in Scotland, the content analysis will specifically focus on posters from AONBs in England and Wales. Of the posters from these suitable sites, only those which reasonably correlate with the present study's research area, of an educational intervention, will be used within the content analysis.

2.2.5 Literature Review of Mood Scales

There is a variety of existing emotion measurement scales, or mood scales used in the literature that have been used to determine the effects of engagement with educational interventions on participant psychological states and the effect of mood on individuals' cognitive evaluations (Yeun and Shin-Park, 2006; Elsadek *et al*., 2019). In addition to the comparison between questionnaire baseline data and post-intervention data, a mood scale in the present study's intervention provides further validation that any changes identified can be solely attributed to the educational

intervention, and are not the result of external factors. This section will examine the extensively tested, pre-validated mood scales from the literature, with a view to including the most appropriate at the end of each of the three questionnaires of the intervention.

2.2.5.1 The Profile of Mood States (POMS)

The Profile of Mood States (POMS) is a 65 item adjective word scale developed to measure a broad mood range via six scales titled anger, tension, fatigue, confusion, depression and vigour, and uses a 5-point Likert answer scale (McNair, Lorr and Droppleman, 1971 cited in Yeun and Shin-Park, 2006), which Curran, Andrykowski and Studts (1995) argue takes up to 7mins to complete by healthy individuals, and up to 20mins by participants not in full health. Recommended by Sohn *et al.* (2011), interventions are best delivered concisely over a short amount of time in order to maximise their efficacy, and have been shown to significantly improve attitudes and behaviours (Kidd *et al*., 2015; Au *et al*., 2015), as discussed in section 2.2.1. As the majority of Cannock Chase AONB park users visit the site briefly for up to 3hrs per visit (Cannock Chase AONB, 2000; 2012), this prevents the use of a lengthy intervention and those that need to be delivered in a lecture-type setting (Sohn *et al.*, 2011). Whilst the 65 item scale has been shown to have good internal consistency (Curran, Andrykowski and Studts, 1995; Gibson, 1997), for the present study, a shorter more accessible intervention is most practical, which the 65 item POMs would not be suited for, as acknowledged by Curran, Andrykowski and Studts (1995).

More recently, the majority of studies have identified this same oversize issue, and have experimentally tried to reduce the number of items used to 11 (Curran, Andrykowski and Studts, 1995), 20 (Bacci *et al*., 2016), 24 (Elsadek *et al.*, 2019), 30 (Yeun and Shin-Park, 2006; Rogerson *et al*., 2016) and 37 (Curran, Andrykowski and Studts, 1995). It has been found that the severe reduction in items to only 11 resulted in major losses of information that the six subscales provided (Curran, Andrykowski and Studts, 1995), and only a moderately strong internal consistency was achieved with the use of 20 items (Bacci *et al*., 2016). Conversely, the reduction to 37 items maintained and even exceeded results of internal consistency of the scale, which Curran, Andrykowski and Studts argued was superior to its original form. Similarly, the 24 item scale was found to have a moderately good internal consistency (Elsadek *et al.*, 2019), although much less than the 37 item scale possesses. Rogerson *et al*. (2016) have found the experimental 30 item scale to have only moderate internal consistency, and provided inconsistent results in the fatigue subscale. Conversely, Yeun and Shin-Park's (2006) study using a 30 item scale revised by the original authors was found to have high internal consistency (McNair, Loor and Droppleman, 1992 cited in Yeun and Shin-Park, 2006). This indicates that the reliability of the scale increases in parallel with increases to the number of items used.

POMs has been shown to effectively be used across subject areas and age groups, with this being the case for both the original 65 item scale and the shortened versions. This is seen by the 65 item scale being used in age studies (Gibson, 1997), employment studies (Bellini, Baime and Shea, 2002), motherhood studies (Grussu, Quatraro and Nasta, 2005), creativity studies (Montgomery, Hodges and Kaufman, 2004), sports studies (Andrade and Rodríguez, 2017) and health care studies (Ali *et*

al., 2017), among others. This is also seen by the shortened scales being used in sports studies (Killer *et al*., 2015), motherhood studies (Lillis *et al*., 2018), environment studies (Elsadek *et al.*, 2019), but mostly in health studies (Bacci *et al*., 2016; Kim and Abraham, 2016).

However, only one of the adjectives included in the POMs scale covers the EAs used in the present study's intervention, in this case guilt (Gibson, 1997), which is often omitted altogether in the experimental shortened versions of POMs (Bacci *et al*., 2016); although many studies do not acknowledge which of the original 65 items they use and which they remove. Also, some of the adjectives used may be culturally unfamiliar, increasing the risk of inaccurate responses from participants, or even the risk of non-participation (Albrecht and Ewing, 1989). Whilst Albrecht and Ewing suggest this may be overcome by examiners on hand to offer alternative adjectives of roughly the same meaning, this does not take into account remote interventions where no examiner is on hand, as used in the online delivery of the present study's intervention.

Nonetheless, whichever version of the POMs scale were to be used would prevent examination into the efficacy of most, if not all, of the EAs used in the intervention. Despite its broad usage, the full version of POMs has been shown to have changeable internal consistency, ranging from weak (Grussu, Quatraro and Nasta, 2005) to strong (Curran, Andrykowski and Studts, 1995; Gibson, 1997). Improved results have been found for the experimental shortened versions, ranging from moderately strong (Bacci *et al*., 2016) to strong (Kim and Abraham, 2016). Very few papers acknowledge internal consistency at all, with the majority omitting mention of this result.

Despite the cross-subject applicability of the scale, and also that the 37 item scale has been improved by the loss of items from its original format, with both it and the revised 30 item scales have been shown to be the most internally consistent versions of POMs, they both remain lengthy scales. The use of either of these oversized scales may put individuals off participating in the current survey. An examination of the literature has shown that POMs is more internally consistent when a large list of items is used. The issue that this same large list puts participants off necessitates a compromise between these two aspects. Due to these collective reasons, POMs is not suitable for the present intervention which, based on the literature, utilised a brief delivery.

2.2.5.2 Depression Anxiety Stress Scales (DASS/DASS-21)

The Depression Anxiety Stress Scale (DASS) is a 42 item statement scale of three subscales developed to specifically measure anxiety, stress and depression. DASS uses a 4-point answer scale to determine how strongly each statement applies to the individual (Lovibond, 1983 cited in Lovibond and Lovibond, 1993), and is argued to take up to 10mins to complete (AbilityLab, 2013). As with the POMs scale, the literature have identified this similar issue of the scale being oversize, and have often reduced the number of items used to 21 (DASS-21) (Lovibond and Lovibond, 1995 cited in Brooks *et al*., 2017; Martin *et al*., 2019).

The literature has shown that the original scale achieves strong (Lovibond and Lovibond, 1993; Ediz, Ozcakir and Bilgel, 2017) to very strong internal consistencies (Antony *et al*., 1998; Crawford *et al*., 2009; Dahm, Wong and Ponsford, 2013). The 21 item version also shows both strong internal consistencies (Antony *et al*., 1998;

Crawford *et al*., 2009; Martin *et al*., 2019) to very strong (Dahm, Wong and Ponsford, 2013; Al-Farsi *et al*., 2016; McAllister, Bhullar and Schutte, 2017) albeit to a weaker extent with the loss of half of the question statements. Again, very few papers acknowledge internal consistency results at all, with the majority omitting mention of this, however the existing discussion of results by the authors mentioned above indicates that both the original and shortened DASS scales have comparable reliability levels.

DASS and DASS-21 have been successfully used with individuals from a variety of age groups and in a range of subject areas providing support for its cross-topic applicability, including environment studies (Brooks *et al*., 2017; Martin *et al*., 2019), health studies (Dahm, Wong and Ponsford, 2013), age studies (Gloster *et al*., 2008); employment studies (Ediz, Ozcakir and Bilgel, 2017), and disability studies (Al-Farsi *et al*., 2016), among others.

The original and shortened DASS scales both solely focus on anxiety, stress and depression, which the present study's intervention does not evoke through EA inclusion. Despite the scale offering some insight as to whether these three emotions are evoked accidentally through inaccurate application of EA material, as discussed by Huhmann and Brotherton (1997), the scale overall offers no insight into the present study's use of EAs in the intervention, and very limited insight into accidental EAs. The use of all negative skewed question statements raises concerns over the creation of negative mood induced bias. As discussed by Smith *et al*. (2006), individuals naturally assign more attention to negative stimuli, for which this stimuli can create a self-reinforcing effect. This effect has been shown to be reduced and even completely eliminated by the presence of positive stimuli. Whilst the mixed positive and negative content of the present study's intervention may possibly

mitigate this effect, the absence of any positively skewed statements in DASS or DASS-21 suggests that this mood scale may create bias in the results.

The original 42 item and shortened 21 item DASS scales all use statement questions, instead of the one word adjectives seen in POMs (see section 2.2.5.1), which would take participants longer to respond to, in addition to the statement and non-statement questions of the present study's intervention questionnaire participants were asked to complete. Even were the DASS-21 scale to be used, this would still require approximately 5mins to complete. Given the necessity of the present study to use a short intervention, and as successfully used in the literature in Au *et al.*'s (2015) 15-20min design and Kidd *et al.*'s (2015) even shorter intervention design, the DASS/DASS-21 scales require lengthy periods to complete, decreasing the accessibility that Kim, Airey and Szivas (2011) and Au *et al*. (2015) recommend should be incorporated. As discussed in the previous section, the present intervention must only take a brief time for completion, which will aid in reducing self-report bias by being more accessible and user friendly, which DASS-21, and especially DASS would prevent. Neither DASS or DASS-21 were used in the present study.

2.2.5.3 Positive and Negative Affect Schedule (PANAS)

The Positive and Negative Affect Schedule (PANAS) was developed by Watson and Clark (1988) and uses a brief 20 affect item scale of 10 positive and 10 negative bipolar (exact opposite) adjective words to measure respondent moods, which participants rate using a 5-point Likert answer scale. The items of the scale are cross-cultural, and with the scale argued to take less than 5mins to complete

(Magyar-Moe, 2009), needs no further shortening of this quick to complete scale. This scale differs from those discussed in sections 2.2.5.1, 2.2.5.2 and 2.2.5.4, in that it has an even number of positive to negative items, whilst other scales have a predominant or complete negative skew which use low scores to indicate any positive moods felt.

PANAS has been used across subjects, including: employment studies (Mark *et al*., 2016), disability studies (O'Donnell *et al.*, 2018), environment studies (Mokhtar, Aziz and Mariapan, 2018; Wendelboe-Nelson *et al*., 2019), social studies (Liang and Zhu, 2015), medical studies (Cha *et al*., 2016), among others. The scale has also been used across age groups, i.e. adolescents (Felver *et al*., 2015), adults (Kell *et al*., 2017) and elderly adults (von Humboldt, Monteiro and Leal, 2016).

The positive affect subscale has internal consistencies of strong (Watson and Clark, 1988; Liang and Zhu, 2015) to very strong (Felver *et al*., 2015; von Humboldt, Monteiro and Leal, 2016), indicating the scale to be reliable. The negative affect subscale is broadly similar to the positive, and has strong internal consistencies (Watson and Clark, 1988; Felver *et al*., 2015; Liang and Zhu, 2015; von Humboldt, Monteiro and Leal, 2016), further indicating the scale to have good reliability overall (Liang and Zhu, 2015). As frequently seen in the literature, studies give little or no discussion of the internal consistency or reliability mood scales, including PANAS, as seen in Mark *et al*. (2016), Mokhtar, Aziz and Mariapan (2018) and O'Donnell *et al.* (2018), among other studies. Whilst the scale has been found to be reliable in many studies, it is uncertain as to whether the literature as a whole would support these findings.

PANAS provides a short and cross-culturally understandable scale that participants would be able to complete quickly and easily. Yet, similar to the POMs mood scale, PANAS only includes guilt out of the EAs that used in the current study's intervention, preventing examination into the efficacy of the other EAs that were be used. However, Russell and Carroll (1999) and Jovanović and Gavrilov-Jerković (2015) argue that the adjectives PANAS uses are not bipolar, that the negative subscale does not contain exact opposites to the adjectives in the positive subscale, or vice versa. It is further suggested that the 20 item scale is too small to cover the full range of emotions felt, and that the adjectives that are included on the scale are only the extreme emotion states, or highly stimulated states, with no inclusion of the more subtle emotions, as seen in POMS and DASS (Russell and Carroll, 1999). Finally, Jovanović and Gavrilov-Jerković, 2015 argue that some of the adjectives PANAS uses are outdated and in need of replacement.

Despite the high internal consistency and reliability findings of PANAS and its short scale, which would be highly beneficial for the present intervention in that participants could complete it quickly, it does have some significant issues. As discussed in section 2.2.3.3, Kruger *et al*. (2015) argue that EAs can be indirect, where subtle messages are given, or they can direct where strongly emotive messages are given, and that limited use of appeals can induce positive attitudes. As PANAS only includes strongly emotive adjectives, it would be ineffective in providing insight into the more subtle use of EAs within the present study's intervention. PANAS was not used in the present study.

2.2.5.4 Brunel Mood Scale (BRUMS)

The Brunel Mood Scale (BRUMS) is a 24 adjective item scale that was developed by Terry *et al*., (1999; 2003), and is a shortened derivative of the 65 item POMs scale (Lane, Jackson and Terry, 2005). The scale uses 5-point Likert answers, takes approximately 1-2mins to complete, and is comprised of the six subscales: anger, confusion, depression, fatigue, tension, and vigour. Each subscale contains four related mood adjectives (Terry, Lim and Parsons-Smith, 2013), and has the quickest completion time of all the mood scales examined. As identified from an examination of the literature, the 24 items of the scale are all cross-culturally understandable unlike some adjectives used in the original POMs, and, as it is has a small list of 24 items, needs no further shortening unlike POMs and DASS which are frequently shortened in the literature prior to use. BRUMS has been validated for use with a British population (Lane, Jackson and Terry, 2005) which further supports the requirements of the present study as usage surveys have shown Cannock Chase AONB's entire visitor, resident and employment-related population to be geographically located in the UK (Cannock Chase AONB, 2000; 2012).

An examination of the literature identified that BRUMS has been successfully used in health care studies (Sharma, Morris and Adams, 2015), but predominantly across sports studies (Moyle, 2005; Antunes *et al*., 2016; Boldizsár *et al*., 2016; Brandt, Bevilacqua and Andrade, 2017; Valenzuela *et al*., 2018; Shalan *et al*., 2019), with very little research into other subject areas. The scale has also successfully been used across age groups, including adolescents (Zhang *et al*., 2014; Fortes *et al*., 2015), adults (Zhang *et al*., 2014; Atar, 2017), and elderly adults (Sroykham and Wongsawat, 2019).

As frequently seen with mood scales in the literature, the majority of studies give little or no discussion of the internal consistency or reliability of the mood scale they examine, including BRUMS (Sharma, Morris and Adams, 2015; Atar, 2017; Van Wijk, Martin and Meintjes, 2017; Sroykham and Wongsawat, 2019). Of those that do discuss these, the literature has shown that BRUMs achieves strong (Brandt *et al*., 2016) to very strong internal consistency overall (Antunes *et al*., 2016), and good construct validity (Brandt *et al*., 2016). Internal consistency of the six individual subscales ranged between moderately strong (Zhang *et al*. 2014; Boldizsár *et al*., 2016), strong (Antunes *et al*., 2016; Boldizsár *et al*., 2016; Brandt *et al*., 2016; Moyle, 2005) to very strong (Antunes *et al*., 2016), with good reliability of the scale (Moyle, 2005; Zhang *et al*. 2014; Brandt *et al*., 2016).

However, an issue with BRUMS is that the scale does not include the adjective items for the specific EAs used in the present study's intervention, and so offers no further insight into whether the intervention content has evoked the chosen EAs and produced attitudinal change. With reference to the focus of the present study, this is a common issue with all the validated mood scales examined. To overcome this issue, the present study used an experimental approach, as similarly seen by authors in section 2.2.5.1's discussion. For this, additional adjectives must be included, that both directly and indirectly examine efficacy of these EAs. As discussed in section 2.2.3.3, the EAs used by these authors in their interventions have sometimes been incorrectly applied, or used interchangeably in the literature (Huhmann and Brotherton, 1997).

Whilst studies have tried to evoke one emotion, this has sometimes failed and evoked another more damaging emotion, necessitating care in the accurate application of specific EAs, as seen in Brennan and Binney (2009). Whilst the

present intervention evoked certain feelings, i.e. disgust through the use of animal waste imagery, as highlighted by Shimp and Stuart (2004), these specific EAs may not be what participants actually feel, thus the need for both additional direct and indirect adjectives to examine this. Direct adjectives will directly examine the EAs used, whilst the indirect adjectives will examine any accident EAs evoked, as discussed by Huhmann and Brotherton (1997). Therefore, in addition to the 24 item validated BRUMs scale (Appendix 9), this experimental intervention study added a further ten items that both cover some of the EAs discussed in section 2.2.3, and related emotions, should the EAs aimed for not be evoked in participants. The extra ten items are: Overloaded, Disgust, Joy, Guilt, Satisfied, Shame, Indifferent, Fear, Resentful, Proud (Appendix 10). As discussed in sections 2.2.5.1 and 2.2.5.2 surrounding the issues of reduced accessibility in using a scale that is too long, the experimental intervention only added these extra ten items to enable the scale to remain reasonably short and accessible to participants (Kim, Airey and Szivas, 2011), and used these ten clear terms that are cross-culturally understandable. Despite these extra items not having been validated, they offered some useful insight as to whether or not the intervention was effective in creating attitudinal improvements.

Despite some differences in consistency strength found between different studies, the literature has identified BRUMS to be largely internally consistent scale of good reliability. Unlike POMs and DASS it has a short list of items, and unlike DASS it uses one word adjectives to rate, which in combination make this scale the most accessible of those examined in the literature. The present study included the BRUMS scale, plus an additional ten experimental items based around the EAs

included in the present intervention. The discussion in this section, and also from sections 2.2.2 to 2.2.5.3 fulfilling Objective two of Aim two.

2.2.6 Overview of Null/Alternative Hypotheses

Table 4 summarises the null and alternative hypotheses being tested during the Phase 2 intervention. Following the results obtained and outlined, these hypotheses will be revisited in section 4.2.4 to discuss which will be accepted/rejected.

	Null Hypothesis (H0)	Alternative Hypothesis (H1)
Activity Group	Participant activity group is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.	Participant activity group is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
User Group	Participant user group type is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.	Participant user group type is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Highest Qualification	Participant highest qualification is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.	Participant highest qualification is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Gender	Participant gender is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.	Participant gender is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Age	Participant age is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.	Participant age is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Postcode Location	Participant area of residence is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.	Participant area of residence is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Mode of Travel	Participant mode of travel is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.	Participant mode of travel is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Occupation	Participant occupation is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.	Participant occupation is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Visit Frequency	Participant visit frequency is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.	Participant visit frequency is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Positive EA	Positive appeals do not have a positive effect on respondent pro-environmental attitudes.	Positive appeals have a positive effect on respondent pro-environmental attitudes.
Guilt EA	Guilt appeals do not have a positive effect on respondent pro-environmental attitudes.	Guilt appeals have a positive effect on respondent pro-environmental attitudes.
Disgust EA	Disgust appeals do not have a positive effect on respondent pro-environmental attitudes.	Disgust appeals have a positive effect on respondent pro-environmental attitudes.

Table 4: Null and Alternative hypotheses tested during intervention

Chapter Three

Methodology

3.0 Introduction to the Chapter

This section will first give a discussion of the general paradigm field followed by the overall research paradigm that the present study adopted. Due to the nature of the subject being examined, the present study is ordered into two distinct stages, termed here as Phases. Following discussion of the research paradigm, the methodology will first discuss the exact methods used in Phase 1, which will be used to gain an understanding of the baseline attitudes of users and non-users of Cannock Chase AONB. Following this, the Phase 2 methods will then be discussed, which will identify the components incorporated into the educational intervention, and determine the intervention's effects on park user participant attitudes. Phase 2 will also discuss pilot study testing of the BRUMS mood scale that was used in the overall intervention material.

3.1 Research Paradigm

Within social science-related subject research, there are a number of elements that must be considered prior to collection of primary data that influence the research process. The first of these elements is the research philosophy, or world view, which is what the researcher perceives as the structural reality of the world (Antwi and Hamza, 2015), and which identifies the important values and beliefs that shape the methodological design by which data is collected and examined (Ryan, 2018). The research philosophy is needed to allow researchers to make informed choices on the

data collection methodologies they will use, and those they will not use, so that these choices can be justified based on the precise needs of the study, making the research findings that more relevant and of higher quality (Easterby-Smith, Thorpe and Jackson, 2012; Oriade, 2013; Ryan, 2018). Use of the relevant philosophy is argued to enhance the adaptive creativity employed by the researcher so that the research design can be precisely tailored (Easterby-Smith, Thorpe and Jackson, 2012; Oriade, 2013). This latter improvement to creativity being of heightened importance for the present study, not only for the study as a whole, but particularly for the creation of a site-specific intervention, as discussed in Phase 2.

Of the three philosophies, the first is ontology, the way the researcher defines this structural reality, of how the everyday world and daily reality is experienced. The second philosophy is epistemology, the process the researcher takes to come to know the structural reality by looking at the general assumptions of how the nature of these daily experiences may be examined with maximum efficacy. Thirdly is methodology, the method of how the structural reality is determined (Mackenzie and Knipe, 2006; Antwi and Hamza, 2015). These philosophies are then guided and determined by the chosen research paradigm, which itself is a framework of academic ideas on how to do a research study.

These newly created ideas and theories from research, are generally separated into two main paradigms at opposite ends of the paradigm scale: positivism and interpretivism. Positivism surrounds the scientific idea of cause and effect, and that this principle can be equally applied to both the natural world and to social world research (Mackenzie and Knipe, 2006). Positivism is objective and begins by citing a theory that the research will test, and either prove or disprove (Ryan, 2018). The positivist paradigm goes on to argue that issues should be measured quantitatively,

so as to predict and influence the changes sought (Easterby-Smith, Thorpe and Jackson, 2012; Antwi and Hamza, 2015), and should be objective, therefore preventing any risk of bias from entering the study stemming from the researcher's own predetermined beliefs (Ryan, 2018). The positivist paradigm believes reality to be hard facts, and does not consist of individuals' subjective experiences. These hard facts are quantitatively collected which may or may not involve personal contact with the study's participants (Antwi and Hamza, 2015).

Interpretivism sets out that all individuals' beliefs, understanding and values are subjective, and that researchers are included in this. As such, these mindsets will inevitably guide how researchers collect and analyse their data (Ryan, 2018). The interpretive paradigm believes reality to be a social construct based entirely on individuals' experiences of the world. Interpretivism suggests that the researcher does not begin with a theory, but uses the hermeneutic approach of interpreting individuals' experiences and interactions to form a theory based on social patterns observed. Data identifying these patterns are derived from qualitative data collection methods, where the researcher is in close personal contact with study participants (Mackenzie and Knipe, 2006, Ryan, 2018).

It has been argued by Mackenzie and Knipe (2006) that interpretivist data collection can be obtained through a mixed methods approach that uses both quantitative and qualitative techniques, whilst similarly, though from the opposite end of the paradigm scale, Ryan (2018) argues that positivist data collection can also be obtained through an inclusion of qualitative techniques. This mixture of data collection techniques across the paradigm scale suggests a blurring of the traditional techniques which have been incorporated for the benefits of individual studies. Similarly as discussed by Easterby-Smith, Thorpe and Jackson (2012) that use of

the relevant research philosophy is able to enhance the adaptive creativity employed by the researcher to produce a study-specific research design, so too could this adaptive creativity method be transferred to use of a mixing of data collection techniques in the literature. Conversely to the benefits of this more creative approach, Noble and Smith (2015) highlight the risks of inappropriate crossover of data collection techniques, in that validity and consistency of data may be in question arising from potential introduction of researcher bias.

However, whilst these two dominant paradigms typically exist at opposing standpoints, the more recent and increasing crossover of qualitative and quantitative methods discussed above had given way to a third paradigm which has later been founded. This third paradigm is post-positivism, which uses a mixed methods approach, that itself uses a level of both qualitative and quantitative techniques. This third paradigm covers this middle ground area between positivism and interpretivism, whereby the research uses both positivist quantitative methods to test a particular theory from the outset, but the research may also be influenced by other theories that it is not examining, as derived from qualitative methods, as the interpretivist element. However, whilst an established theory may be tested, it would still be considered in provisional terms, as new findings may overturn the established theories, meaning that an established theory may be applicable for an individual or group, but may not apply to others (Mackenzie and Knipe, 2006). This more ambiguous nature of the paradigm being slightly more in alignment with interpretivism. It should also be noted that whilst studies have stated either a positivist or interpretivist method, they often refer to their techniques as mixed methods (Mackenzie and Knipe, 2006; Ryan, 2018), which potentially suggests that a post-positivist technique is more often being utilised.

Despite these questions surrounding which data collection technique is being applied, paradigm-specific issues still persist within each of these three individual forms. In the case of positivism, the sole collection and examination of quantitative data prevents compilation of specific qualitative details about the topic area and any issues occurring for analysis or further study into. This research is dependent on the researcher having a thorough, accurate and unbiased understanding of the subject from which their questionnaire is generated, as the wrong questions being asked render the study ineffectual in resolving the issues present. In the case of interpretivism, the sole collection of qualitative data is not only time consuming in its analysis which limits the size of population sample that can be taken (Driscoll *et al*., 2007), but puts the results at high risk of bias from the data amounting to a collection of personal and subjective opinions. These are alongside questions over the lack of scientific rigour performed (Meinzen-Dick, DiGregorio and McCarthy, 2004; Noble and Smith, 2015). However, this argument over lack of rigour may have been caused by the inappropriate crossover use of quantitative research quality measures, such as validity and consistency, on to qualitative studies. To reduce/omit this risk, researchers must acknowledge any personal and study biases present, ensure a wide variety of highly detailed population data is collected within and outside the questions asked, and comparing findings to comparable existing studies (Noble and Smith, 2015).

Meinzen-Dick, DiGregorio and McCarthy (2004) argue that whilst studies may often use quantitative and qualitative methods separately, that their combined use in a mixed methods approach is highly beneficial. Quantitative methods allow a larger and more representative population sample to be taken, and allow the quick identification of key issues and how best they may be resolved. Supporting this,

qualitative data provides greater flexibility and the deeper detail, which may be of additional advantage to new researchers who are less familiar with their subject. Also, qualitative data allows researchers to interpret what is happening in their topic so as to inform and support the development of the quantitative methods such as questionnaires.

Considering these discussions, the present study employed the post-positivist paradigm. This is both for the advantages that a mixed methods approach can bring, but also as the multiple subject areas of the present study require use of the paradigm due to its specific nature for both qualitative and quantitative data collection, which other paradigms lack. The present study has been separated into two distinct Phases. Phase 1 firstly examines Cannock Chase AONB user qualitative feedback through interviews, with key reoccurring issues having informed the development of a quantitative questionnaire. This questionnaire includes the self-report NEP scale designed to measure the associations between the variables and behaviours, which collected baseline responses from user groups of Cannock Chase AONB that allowed determination of larger scale trends. Phase 2 comprises qualitative examinations of the experimental educational intervention poster designs, the BRUMS mood scale plus experimental items pilot study, and intervention pilot study, which identified remaining issues that could affect participation. The intervention's efficacy was measured via use of the same quantitative questionnaire developed in Phase 1 to ensure consistency in the cross-phase data collection of the entire study.

3.2 Methodology of Phase 1 of Study

This section of the methodology will discuss the exact methods used in Phase 1, which were used to gain an understanding of baseline attitudes of users and non-users of Cannock Chase AONB. This discussion will identify the exact developmental process of the quantitative questionnaire used, based on supporting information obtained by use of interviews and a draft copy questionnaire pilot study.

3.2.1 Qualitative Data Collection Interviews

As has been used frequently in the literature (Brennan and Binney, 2009; Lopez-Mosquera and Sanchez, 2011; Buta, Brennan and Holland, 2012; Greaves, Zibarras and Stride, 2013), the present study first conducted interviews with a range of activity groups to identify common themes and issues within the subject, to inform the development of the questionnaire.

As discussed in sections 2.1.2.2 and 2.1.3, and based on the included authors' recommendations, the present study conducted qualitative 5-10min duration interviews (Lopez-Mosquera and Sanchez, 2011; Buta, Brennan and Holland, 2012) with participants at the Birches Valley, Marquis Drive and Fairoak Pools locations on Cannock Chase AONB on weekdays 17th October and 17th December 2012, and also 19th April and 16th July 2013, where two; fourteen; twelve and four interviews were conducted for the respective days. 32 interviews were conducted in total. Interviews were all conducted during daytime hours, with evening and night time hours being excluded from the sample for research team health and safety. Interviews were conducted across all four annual seasons and on days of fair

weather to ensure test condition consistency and to maximise the opportunity for obtaining responses. Participants were selected using non-probability convenience sampling (Kim, Airey and Szivas, 2011; Song, Zhao and Zhang, 2018), with interviewees consisting of single adult responses and collective responses from groups of between two to four adults. Some individuals and groups also had children with them; whilst occasionally children did feedback in the discussions, their feedback was not aimed to be collected, and was not used in the present study for ethical reasons. The researcher and supervisor at point of interviews, Dr Paul Fallon, conducted separate interviews in nearby proximity, to satisfy risk assessments to avoid lone working, and to increase data collection. Potential participants were clearly informed of the details of the research study prior to being asked if they wished to voluntarily participate, with the research team wearing ID cards at all times for full transparency. The research team asked participants a list of nine pre-prepared semi-structured questions:

1. Does the condition of the environment bother/concern you? If yes, how/what things?
2. Do you do anything to protect the environment?
3. Do environmental issues alter how you spend your leisure time?
4. How often do you visit Cannock Chase? Which areas do you visit?
5. Do you live local to Cannock Chase?
6. What activities do you do on site?
7. Do you think there are any conflicts between the user groups?

8. Does Cannock Chase have any special or emotional significance for you?

9. Do you think Cannock Chase is well managed?

All discussions were supplemented with ad hoc questions put to participants depending on the conversational direction to obtain further relevant information. All interviews were voice recorded, with respondents participating voluntarily and anonymously. Recorded interviews were transcribed (Appendix 2) offsite and examined for common themes and issues, both positive and negative, which informed the development of the first draft of the quantitative questionnaire (Brennan and Binney, 2009; Rae, Simon and Braden, 2010). These themes provided guidance for the development of questions for the draft copy quantitative questionnaire. Questions developed were separated into three sections that examined: 1) the things that encourage individuals to visit/use the park, 2) issues that individuals dislike about the park, and 3) general questions about individuals' environmental behaviours to the park and the national/global environment.

3.2.2 Quantitative Data Collection Questionnaire Pilot Study

As has been used frequently in the literature (Terblanche-Smit and Terblanche, 2009; Roozen, 2013; Liaw *et al*., 2014; Au *et al*., 2015; Saleem, Eagle and Low, 2018), the present study first developed a questionnaire and conducted an initial pilot study to identify if the questionnaire questions and overall design is understandable by participants, and to highlight any errors and amendments that may be needed.

The experimental site user questionnaire was developed and contained the fifteen NEP question statements with 5-point Likert answer scales, together with social

demographic questions to determine gender, age, highest qualification, first half of postcode and occupation. Based upon common themes and issues identified from the transcribed interviews, environmentally related question statements specific to the positive and negative features and issues of Cannock Chase were created by the author, with 5-point Likert scale answers; these questions contained ten with a positive skew to their wording, and six with a negative skew. Environmental question statements that were non-site-specific and which related to general positive and negative environmental behaviours were also created by the author and used the 5-point Likert answer scale; these questions contained four with a positive skew to their wording, and six with a negative skew. In addition, site usage questions collected data on why participants were on site, i.e. visiting, a resident, or in employment; what activity/activities they were there to do, how frequently they visit Cannock Chase AONB, and how they travelled to the site. The user questionnaire size was one A4 sheet, comprising two full A4 sides. The non-user questionnaire contained only the NEP question scale and gender, age, highest qualification, first half of postcode and occupation social demographic questions, and covered one full A4 side.

As discussed in Table 5 in section 3.2.3, studies have used a variety of size groupings for their age answer scales, which have not been explained by these authors; it may be possible that these groupings have been created via experimental methods. Despite the study examining only adult population responses, Bjerke, Thrane and Kleiven (2006) have included young adults in their first age range of 15-24 years, with no discussion as to why. Almost identically in Liu, Ouyang and Miao (2009), whilst only adult responses were examined, the first age range is 12-18 years, which incorporates young adults also, with no explanation given. Similarly, in

Liu *et al*. (2016), whilst children and adults are referenced in their literature review, they do not state if they are examining only adult responses, for which there is no explanation as to why the first age range includes young adults. Alternatively, if both adult and children's responses were sought, Liu *et al*. still give no discussion on why they have omitted years 0-10 from their age groupings. From these findings, it is likely that experimental age group sizings are commonly used. In line with these methods used in the literature (Table 5), and guided by groupings that have been employed, the present study has used age groupings of 16-18/19-21/22-24/25-34/35-44/45-54/55-64/65-74/75-84/85+. The presence of the 16-18 age range in the present study allows young adult responses to be identified and removed from the analysis, as ethical approval of the study only allowed adult responses to be examined.

As shown to be effectively used in this topic area by Kim, Airey and Szivas (2011), Kidd *et al.* (2015) and Goh, Ritchie and Wang (2016), non-probability convenience sampling was conducted off-site with 11 voluntary participants on weekdays in late July 2013. Pilot study responses each took approximately 10-15mins each. Feedback obtained was actioned and informed the creation of the final draft Phase 1 quantitative questionnaire.

3.2.3 Overall Phase 1 Questionnaire Design Summary

Previous studies have identified that researchers need to first gain a qualitative understanding of their subject before a questionnaire can be produced to obtain quantitative data; this is referred to as a mixed-methods approach (Shimp and Stuart, 2004; Terblanche-Smit and Terblanche, 2009; Lopez-Mosquera and

Sanchez, 2011). Studies commonly obtain this initial understanding through interviews using a small number of semi-structured questions/pointers, with recordings transcribed and mined for common themes/issues (Brennan and Binney, 2009; Lopez-Mosquera and Sanchez, 2011; Buta, Brennan and Holland, 2012; Greaves, Zibarras and Stride, 2013) from which researchers are able to ask further in-depth questions as based on participant answers, to determine deeper issues. Whilst there is the acknowledged issue of feedback quality with this method as discussed by Greaves, Zibarras and Stride (2013), this can be mitigated by using a combination of participant feedback, researcher knowledge of the subject and use of subject-specific official reports to guide development of the experimental questionnaire.

When composing the questions for interviews and questionnaires, the terms used must be clear and easy to understand. However, even when this is believed to be the case, Schreyer, Knopf, and Williams (1984) discuss how specific words have different meanings and associations for different interviewees. Therefore, in composing questions for this study, clear, straightforward terminology must be used, which may need to be supplemented with verbal or written term definitions to reduce the potential for gaining data of low accuracy. Ap and Crompton (1998) further discussed the need for an unbiased and objective approach to how questionnaire and interview questions are worded. Schreyer, Knopf, and Williams, and also Ap and Crompton have identified the risk of positive or negatively worded questions in creating bias in respondent answers. To avoid this potentiality, care was taken in the present study to compose questionnaire and interview questions which were objective and neutral in their use of wording.

In line with the literature (Lopez-Mosquera and Sanchez, 2011; Spartz and Shaw, 2011; Buta, Brennan and Holland, 2012; Ashbullby *et al*., 2013; Abbasi, Alalouch and Bramley, 2016), the present study used a mixed methods approach, where initial qualitative data was recorded, and collected using approximately ten semi-structured questions within interviews (Spartz and Shaw, 2011), with individual interviews approximately taking up to 15mins (Ashbullby *et al*., 2013). Following recording transcription and identification of important themes, the feedback informed development of the quantitative experimental questionnaire.

As discussed earlier, an examination of the literature has identified that studies do use differing degrees of experimental design in their quantitative questionnaires, whereby question statements from existing cognitive-behavioural scales from the literature are merged with new, author-developed question statements, together with other variables such as socio-demographic questions, to form new study-specific questionnaires. From an examination of the literature discussed earlier, authors merely state what question statements and socio-demographic questions they will use, if stated at all, and omit the reason(s) for these choices, further supporting the concept that their design choices are based more so on their understanding of their research topic, and to tailor the questions they use to be study-specific. This common method witnessed throughout the literature suggests that an experimental questionnaire design, used in conjunction with the NEP and under the Theory of Planned behaviour model, was the most appropriate for this present study. A brief one paragraph introduction was added to the beginning of the questionnaire to provide clarity to participants about its purpose. This paragraph contained information on what the study was about and what data the questionnaire sought to collect, that it is voluntary, to reassure participants that responses are anonymous,

along with inclusion of research team contact details should participants wish to know more or provide general feedback.

Of the studies that look at correlations between their test constructs and participant age, there is no consistency in the age groupings used, and authors shown in Table 5 frequently give no rationale for the groupings they use. Where a rationale is provided authors have tried to create roughly equal group sizings (Amonini, Pettigrew and Clayforth, 2014). From Table 5 this inconsistency in age group sizes can be seen. Given the inconsistency and the lack of explanation for why these groupings have been used, it is possible that authors of the studies have used experimental methods that are designed around the specific natures of their studies. In line with this method, the present study also developed age group sizes for use in the quantitative questionnaire.

Age Groupings	Study
11-20/21-30/31-40/41-50/51-60	Liu *et al*., 2016
18-29/30-44/45-54	Amonini, Pettigrew and Clayforth, 2014
15-24/25-34/35-44/45-54/55-64/65+	Bjerke, Thrane and Kleiven, 2006; Cannock Chase AONB, 2000
18-25/26-35/36-45/46-55/56+	Sreetheran, 2016
18-29/30-45/46-64/65+	Sirakaya-Turk, Ekinci and Kaya, 2008
12-18/19-30/31-40/41-50/51-60/60+	Liu, Ouyang and Miao, 2009
18-25/26-35/36-45/46-55/56-65/66+	Kim, Airey, and Szivas, 2011
Up to and including 40/41-60/61+	Zhang, Cole and Chancellor, 2015
18-25/26-35/36-45/46-55/56-65/66-70	Lin *et al*., 2013
18-40/41-60/65+	Cannock Chase AONB, 2012

Table 5: Questionnaire age group sizes used in the literature

The literature discussed above has also shown that once authors have created a draft copy of their questionnaire, this then receives a preliminary test, or pilot study. This pilot study determines if the questionnaire questions are valid and understandable by participants, to highlight any errors and amendments needed and if it uses a feasible format (Terblanche-Smit and Terblanche, 2009; Roozen, 2013; Liaw *et al*., 2014; Au *et al*., 2015; Saleem, Eagle and Low, 2018). As the present study used the pre-validated NEP scale (Dunlap *et al*., 2000), alongside basic social demographic and place attachment questions, no validation tests needed to be carried out on the questionnaire. In the literature, the pilot studies are then distributed to relevant small sample groups of either individuals or small groups, as is further discussed in section 3.2.4, with feedback informing any amendments required

(Terblanche-Smit and Terblanche, 2009; Roozen, 2013; Liaw *et al*., 2014; Au *et al.,* 2015; Saleem, Eagle and Low, 2018). Based on this common study method, the present study conducted a pilot study of the experimental questionnaire that was developed and used here, with feedback used to develop the final draft questionnaire. The pilot study recruited participants from off-site who may be users and/or non-users of Cannock Chase AONB; as the interviews have already provided information specific to the site from site-users, further specific input was not needed, as the pilot was solely examining the questionnaire for its understandability, ease of completion, and any minor errors for correction.

In order to assess the current pro-environmental attitudes of user groups to Cannock Chase, pilot study and final draft questionnaire data was required to be collected from both park users and a control group of non-park users for a comparative examination. This control group allowed researchers to determine the cause of any changes seen post-intervention, and importantly if these changes were solely attributable to the intervention, or if they had developed externally to the intervention (Shimp and Stuart, 2004; Hutchinson *et al*., 2015). Studies that have not used a control group have acknowledged this issue with their method design. Amonini, Pettigrew and Clayforth (2014), Hutchinson *et al*. (2015) and Schwarzer *et al.* (2016) have stated that they were not able to say if their intervention created the changes seen, and that future studies need to include control groups to avoid this issue. To ensure reliability of the data obtained, both the park user and non-user questionnaires contained the NEP scale and social demographic questions in an identical format, with the place attachment questions only included in the user questionnaire.

Further to the survey design outlined for use, the literature makes use of a variety of sample methods, which again are based upon the requirements and limitations of individual studies. As discussed in the present study, a common method used in outdoor and environmental-related studies is non-probability convenience sampling, as has been used by Kim, Airey and Szivas (2011); Kidd *et al.* (2015); Goh, Ritchie and Wang (2016). This sampling method is particularly useful due to the high turnover of participants at these outdoor locations, which makes other sample methods unfeasible. In line with the literature on this subject area, the present study used non-probability convenience sampling to select participants for the qualitative interviews on-site, the pre-validated pilot study off-site, and the paper copy quantitative questionnaires that were conducted both on-site and off-site to collect both user and non-user responses.

For the non-face to face electronic questionnaire data collection, a number of authors have used purposive sampling to recruit participants, as seen in Bjerke, Thrane and Kleiven (2006) and Schwarzer *et al*. (2016). The vast majority of site user groups live on and within a few miles of the site (Cannock Chase AONB, 2000; 2012). Therefore, the present study purposely recruited the majority of the sample from: 1) the onsite resident and employment population, and 2) from the resident, visitor and employment population within the immediate few miles radius of the site. To further capture responses from the minority of visitors that live beyond this immediate radius, a random sampling method was used (Lopez-Mosquera and Sanchez, 2011; Buta, Brennan and Holland, 2012; Hutchinson *et al*., 2015; Song, Zhao and Zhang, 2018). These studies have shown this method to be useful in selecting potential participants from very large populations of across large cities to national scale, as is the case for Cannock Chase AONB in the present study.

Random sampling was supplemented by the snowballing method, as used by Buta, Brennan and Holland (2012) and Previte, Russell-Bennett and Parkinson (2015). These studies have shown that the snowballing method is useful in allowing researchers to extend their study sample population quickly and with direction, from a large scale population. Whilst this does create an increased risk of result bias, from the possible hazard of using a homogenous sample, the present study actively reduced/avoided this by applying the snowballing method to all areas of the random sample population completed in the immediate site radius. Due to the study-specific requirements of the present study, other sample methods were unfeasible for use here.

As seen in the discussion above, studies have used different delivery methods in which to collect responses. As highlighted in Greaves, Zibarras and Stride (2013) and Mtutu and Thondhlana (2015), it is vitally important to ensure anonymous response conditions, to rule out social desirability bias. Whilst this has not been openly acknowledged in some studies, it is a common reoccurring procedure; for paper copy questionnaires, i.e. use of mail outs to resident home addresses (Zhang, Cole and Chancellor, 2015), in the use of electronic questionnaires emailed to participants (Greaves, Zibarras and Stride, 2013), and in studies where the questionnaire format is unspecified i.e. an onsite privacy booth (Goh, Ritchie and Wang, 2016). Whilst the subject specific conditions and resource limitations of the present study could not guarantee it, the research team actively maximised anonymous responses by introducing the questionnaire to potential participants as an individual response questionnaire, to minimise this potential bias.

As successfully and frequently utilised by Bjerke, Thrane and Kleiven (2006), Liu, Ouyang, and Miao (2009), Saleem, Eagle and Low (2018) and Gabriel, Hoch and

Cramer (2018), the present study used a paper copy format questionnaire to collect baseline data, as despite differing study achievements, these authors have not cited the paper format of their questionnaires to be an issue. The only issue that was raised was general to the use of questionnaires, in that individual participants may not understand certain words used, which could easily be remedied in the present study as the research team were on hand to provide a neutral explanation of the content, so as to not bias the results.

However, Kim, Airey, and Szivas (2011) have argued the need for full accessibility of materials given to participants, to prevent exclusion of certain groups, and ensure the sample is as representative of the population as possible. As the user questionnaires were collected on-site and off-site on specific days and at specific times of day based around research team availability, this automatically prevented data collection from users that visit on other days or at other times of the day. To avoid this day/time-based bias, the present study also used off-site electronic equivalents of the paper questionnaire, as used by Greaves, Zibarras and Stride, 2013, and Song, Zhao and Zhang, 2018. The invite and link to the survey was emailed out to participants, with the body of the email containing a textual introduction in place of the verbal introduction on-site participants all received. To further ensure consistency in data collection, the non-user questionnaire was also sent out electronically.

As seen in Sohn *et al.* (2011), the results from this survey formed baseline data that gave an indication as to whether user attitudes were pro-environmental or not, and to what extent. As has been seen in the studies discussed earlier and throughout the literature, participant attitudes are not completely pro-environmental (Bjerke, Thrane and Kleiven, 2006; Liu, Ouyang, and Miao, 2009) and as potentially witnessed on

Cannock Chase AONB by the presence of many behavioural impacts (Cannock Chase AONB, 2000; 2012). This left room for improvement and provided justification for further research into a site-specific intervention that was carried out for Cannock Chase AONB, and go on to inform official site management strategies. If, conversely, user attitudes were found to be completely pro-environmental, there still remained the justification for the testing of an intervention to determine if specific interventions may have a detrimental effect on attitudes, and what official site management strategies would need to avoid going forward.

3.2.4 Overall Sample Sizing Summary

A review of existing literature has shown that there is no consistent sample size number in use by studies that use either a qualitative interview, a qualitative pilot study or a quantitative primary research element. As seen in the literature, qualitative interviews have used a variety of sample group sizes: 10 (Spartz and Shaw, 2011; Abbasi, Alalouch and Bramley, 2016); 24 (Buta, Brennan and Holland, 2012; Ashbullby *et al*., 2013); 30 (Lopez-Mosquera and Sanchez, 2011). Pilot studies have also used a variety of sample group sizes, such as 6 (Giles-Corti *et al*., 2005); 13 (Sullivan *et al*., 2019); 15 (Beil and Hanes, 2013); 24 (Buta, Brennan and Holland, 2012); 39 (Gilchrist, Brown and Montarzino, 2015); although most studies do not specify their sample group size. The present study recruited a sample group within these respective number regions as identified by the literature.

In terms of the sample group sizes used in quantitative surveys, the study by Shimp and Stuart (2004) contained 138 (58 control, 80 experimental) and 131 (70 control, 61 experimental) respondents respectively in the 1st and 2nd parts of their first study

stage, decreasing to 25 respondents in their exploratory second study stage; no mention was made to whether the study was local, national or international in scale, although the small samples used would suggest a more local scale study. Other varying sample sizes encountered in the literature include totals of 360 in a part-national scale study (Terblanche-Smit and Terblanche, 2009), 590 in a national scale study (Au, Whaley, Rosen, Meza, and Ritchie, 2015), and 106,859 in a national scale study (Kruger, Niederdeppe, Byrne and Avery, 2015).

Even in the studies discussed in more detail in this present study, a wide variety of sample sizes can be seen, including 70 (Mtutu and Thondhlana, 2015), 112 (Liu, Ouyang, and Miao, 2009), 194 (Lopez-Mosquera, Sanchez, 2011), 284 (Gabriel, Hoch and Cramer, 2018), 383 (Maleki and Karimzadeh, 2011), 435 (Matthies, Selge and Klockner, 2012), 538 (Kiatkawsin and Han, 2016) and 777 (Hutchinson *et al.*, 2015), among many others. However, given the reliable results these sample sizes have achieved, this would suggest that a similar number within this approximate range was suitable for use in the present study. Beitelspacher *et al*. (2012) acknowledged that to satisfy tests of internal validity, sample sizes need to be a minimum of 30 per group. Whilst using these sample sizes may be recommended, the results obtained were acknowledged as lacking some reliability. Although this was attributed to the specific supermarket chain subject of their national-scale survey, there is the potential that their small sample sizing may have contributed to this. The majority of the literature, some of which has been discussed in the present study, has been shown to use sample groups of approximately between 112 (Liu, Ouyang, and Miao, 2009) and 777 (Hutchinson *et al.*, 2015), indicating this to be a representative sample group size.

Running parallel to sample sizing is the sample population itself. Care must be taken to ensure as unbiased a sample is taken as possible, as seen in Gadenne *et al*. (2011) where researchers looked at the influence of environmental beliefs and attitudes of consumers on their energy saving behaviours in Sunshine Coast, Australia. In the study, an online survey was emailed to customers from three environmentally friendly companies that sold related services and products:

1) a renewable and natural building materials supplier

2) a supplier of solar panels including installation services

3) a printer utilising renewable energy sources and biodegradable materials

It was found that general environmental beliefs did not correlate with pro-environmental attitudes, that cost was a significant barrier to pro-environmental attitudes, also that combined attitudes of being favourable to purchasing green products, despite higher costs, were significantly associated with pro-environmental purchasing behaviour, and more broadly that pro-environmental attitudes are associated with environmental behaviours, although Gadenne *et al*. (2011) does not signify if this correlation is significant or not. Gadenne *et al*. have acknowledged that even though their results did not indicate the presence of bias, there is a high potential for bias inherent due to the population sample chosen, and that further research is still needed in this field. In this regard, the sample chosen in this present study was fully representative of Cannock Chase AONB's user and non-user populations to ensure its reliability. The present study recruited a sample of 210 non-park users as the control group, and 701 park users to collect baseline data from, which is within the region that has been successfully used in the studies discussed above to yield reliable results.

3.2.5 Quantitative Data Collection Questionnaire Study

Questionnaire responses were collected on weekdays and weekends from September 2013 to July 2016 across all four annual seasons. Paper copy user questionnaires were all collected during daytime hours with evening and night time hours being excluded from the sample for research team health and safety. Paper questionnaires were collected on days of fair weather to ensure test condition consistency and to maximise the opportunity for obtaining responses. As successfully used in the study by Song, Zhao and Zhang (2018), and particularly in the environmental, user group and parkland-related comparable studies of Kim, Airey and Szivas (2011), Kidd *et al.* (2015) and Goh, Ritchie and Wang (2016), on-site participants of the present study were recruited voluntarily using non-probability convenience sampling. Paper copy non-user questionnaires were all collected during daytime hours at indoor locations, with participants also recruited voluntarily using non-probability convenience sampling. Both electronic user and non-user questionnaires were emailed to potential participants during day time hours to be consistent with the approach used for the paper copy format. Off-site participants were recruited voluntarily using random sampling which was extended by snowball sampling.

Email invites contained a brief textual introduction to the study, the questionnaire and the researcher, with contact details included if respondents have any comments or questions, and instructions on what they would need to do (Appendix 3). Email invites contained two web links to both questionnaires which were available using Surveyor software, Word document versions of the user and non-user questionnaire were also attached to the email to increase accessibility. The introduction also clarified that participation was individual, and that those receiving the email were

welcome to forward the Word document questionnaires to anyone they think might like to participate. Participants completing a paper questionnaire were given this same brief introduction verbally. Questionnaires took approximately 10-15mins to complete, with responses obtained from a variety of small businesses, individuals, education providers, public services and faith groups, mainly from within a few mile radius of Cannock Chase AONB, with the minority collected outside this radius. In total 911 questionnaires were collected; 210 non-user and 701 user.

The dual use of paper copy and electronic copy data collection used here having previously been used and validated by Song, Zhao and Zhang (2018), was found to be an effective method of obtaining participant responses which did not cause their results to be biased or unreliable. As shown by Song, Zhao and Zhang, and also in the present study, this dual method allowed an expanded population sample to be taken to improve results and allowing them to be more representative than other studies sample sizes (Gilchrist, Brown and Montarzino, 2015; Abbasi, Alalouch and Bramley, 2016; Sullivan *et al*., 2019). It should be noted that the present study provided an introduction verbally to participants completing paper questionnaires, and in text for electronic submissions, ensuring no participant was disadvantaged in their understanding of the survey and what was required. The only potential issue may have arisen from language/regional accent barriers, if participants and researchers could not be fully understood by each other. To avoid this being an issue, the research team spoke clearly and concisely to maintain clarity of language, with no instances of language barrier issues having been found. Whilst anonymity was implemented as much as possible, this was not always guaranteed with paper copies, due to many site users being in groups. Anonymity in electronic responses cannot be commented on, as despite introductory wording asking responses to be

individual, this information is unknown. The discussion in this section, and also from sections 3.2.1 to 3.2.4 fulfilling Objective two of Aim one.

3.3 Methodology of Phase 2 of Study

This section of the methodology will discuss the exact methods used in Phase 2, and of the components incorporated into the educational intervention, so as to ultimately determine the intervention's effects on park user participant attitudes. This discussion will also identify the exact process of developing the poster intervention used here, followed by pilot study test procedures for both the intervention and BRUMS, and methods used in the full intervention study.

3.3.1 Pre-Intervention Content Analysis

An internet content analysis of AONB posters was completed from September 2016 to early February 2017. Based on the discussion in section 2.2.4 of relevant comparable sites chosen for inclusion in the content analysis, posters and leaflets from 38 sites were examined across England and Wales. To provide consistency between the aims of the present study's intervention and corresponding materials to include in the content analysis, criteria for suitable existing posters and leaflets required they include similar information as the present intervention. This information must be on subjects aiming to improve user pro-environmental attitudes towards the individual site's issue(s)/raise or improve user awareness of the individual site's issue(s), with a view to this improved cognitive stage directly influencing and

improving user behaviour, as is conducive to the scope of this present study. All posters and leaflets that did not fit this criteria were excluded.

Due to time, resource and availability limitations of the researcher in the present study, other AONB sites in England and Wales could not be visited to record any relevant posters in use past/present/forthcoming, necessitating the use of an internet based search. However, despite the content analysis necessarily being limited to an internet based search, conversely this provides a better alignment between the materials found and the electronic poster method used in the present intervention, allowing the analysis results to be more directly tailored to the poster development here.

Internet searches were conducted on official AONB websites, and or on local government websites if these were used in place of an official AONB site. Internet searches further included non-official websites to obtain a full range of all available recorded poster material available to the public, which as these posters are no longer in active use by the AONB's management bodies, copies have not been stored on their official websites. Search criteria used a selection of keywords relevant to the topic to obtain electronic posters, i.e. "attitudes", "awareness", "user impacts" and "poster". As there were few existing electronic posters, all those that were found have been used in the present content analysis, making this a full population sample. In total 32 suitable documents were found for use in the content analysis.

Given the discussion of the range of methodologies in section 2.2.4, the small quantity of materials that are suitable to be examined, and the common analysis methods used for smaller data sets (Wood, Patterson, Katikireddi and Hilton, 2013;

Assarroudi, Nabavi, Armat, Ebadi and Vaismoradi, 2018), the present study used a qualitative content analysis. This study will use the qualitative content analysis to identify common themes used in existing public-facing posters and leaflets to help inform the development of a poster intervention. As further discussed in sections 2.2.1 and 2.2.3 to 2.2.3.5, the present study will be testing existing theories on efficacy of intervention design, and inclusion of emotional appeals to improve Cannock Chase AONB user pro-environmental attitudes. These combination of factors necessitate use of an abductive qualitative content analysis in the present study.

The 32 suitable materials found were coded into four message subgroups: positive message, neutral message, negative message, and a combination use of negative and positive messages, and analysed separately for their background design, main content and main content design components. A sample of posters used in the present content analysis can be seen in Appendix 5.

3.3.2 Intervention Creation and Pilot Study

As informed by the content analysis in section 4.2.1, recommendations by Briggs (2009); DeSilets (2010), Hubenthal, O'Brien and Taber (2011) and Austin (2017), together with the present author's knowledge of the study site, eight experimentally designed posters were created between March to April 2017. Four posters were created in landscape view, and four in portrait view using Microsoft Office software. All posters were separated into two equal halves of one A4 page area, one half communicated the existing negative abuses of the park by users, whilst the other half communicated the existing positive features of the park (Appendix 6, Images 1

to 8). The negative and positive messages were arranged to be read progressing either from left to right across the page, or with the positive aspects at the top with negative issues at the bottom, as recommended by Briggs (2009) and DeSilets (2010), whereby the negative message was placed on the left/lower side to indicate the current issues the site is experiencing, progressing into the positive message on the right/upper side to indicate the positive elements of the park that users must try to preserve and protect now and in the future.

Negative and positive messages were communicated via a mostly equal number of between 3-5 negative and 3-5 positive photo images, and brief text labels to identify what each image was showing. As discussed in section 2.2.3.5, images used in the posters were chosen that contained EAs as discussed and described by Shimp and Stuart (2004), and experimentally chosen using guidance from the materials examined in the content analysis when studies gave no discussion of specific EA content examples. Photo images used were mainly collected by the author from 2015 to 2016 from locations across Cannock Chase AONB. Where the author was unable to capture images of live wildlife on site, a small quantity of royalty free images of indigenous wildlife species in surroundings visually similar to Cannock Chase were used in lieu and labelled with their website origin. Negative images displayed issues including dog fouling, soil erosion and arson amongst other issues. Positive images displayed features such as wildlife, natural spaces and commemorative sites.

Each poster featured a title with slightly different wording, but all communicated a question, that site users had the power to decide on the condition of the park, that it can either be as it is in the negative message, or as it is in the positive message (Hubenthal, O'Brien and Taber, 2011). Each poster contained an optional extension

to the information it offers, through inclusion of an identical brief sentence directing viewers to the official Cannock Chase AONB website if they would like more information about the site (Hubenthal, O'Brien and Taber, 2011). Background and content design varied throughout the eight posters to include a variety of presentation styles, including: multi-colour/sepia/black and white images, plain/block colour/distorted site image backgrounds, uniformly/non-uniformly sized images, differently coloured text, differently sized spacing between images and text and different positioning of content.

Paper copies of the eight poster designs, a short qualitative questionnaire of open questions to identify the best poster design and content features, together with the BRUMS supplemented with ten further emotions by the author were given to a non-probability convenience sample of 19 participants off-site. This pilot study took approximately 10-15mins to complete per participant and was conducted off-site in early May 2017, during daytime hours. Participants were given the posters, the questionnaire and scale simultaneously to complete. Open questions consisted of:

1) Are these posters clear and easy to read/understand?

2) How do these posters create the emotions rated on BRUMs?

3) Do any of the poster images create these emotion(s) more strongly than others? If yes, which image(s) and why?

4) Do any of these posters convey their message more easily/quickly/concisely than the others? If yes, which one(s) and why? (P=portrait, L=landscape)

5) Which is the best poster(s) overall?

Similarly to the initial interviews that informed quantitative questionnaire development (section 3.1.1), responses from the short qualitative questionnaire pilot study were transcribed and analysed using the hermeneutic method (Brennan and Binney, 2009) to determine both a holistic understanding of the responses, and to identify reoccurring key themes. The data indicated that certain images effectively made participants feel certain emotions towards the subject, i.e. an image of dog fouling creating feelings of disgust, and an image of a dead hedgehog making participants feel unhappy about what has happened to the animal. Responses identified that colour images were better than black and white/sepia toned images, as the latter were felt to be unfair and unrepresentative of their content, that they lessened the impact of the content, and were even simply artistic. Colour images were felt to be striking and clearly showed the contrast between the positive use and negative abuses of the site.

Following incorporation of the feedback points from the qualitative questionnaire pilot study, the full final copy intervention (Appendix 7) and questionnaire were produced and piloted across two weeks to a non-probability convenience sample off-site. 22 responses were collected in week 1, and from the same sample 14 responses were collected in week 2. The pilot study took approximately 10-15mins to complete per participant and was conducted off-site in late May 2017, during daytime hours.

3.3.3 Mood Scale Pilot

Simultaneous to the intervention pilot study, the BRUMS mood scale (Terry *et al*., 1999; 2003) plus ten additional experimental adjectives related to the EAs within the intervention was given to the same sample of 19 participants, of which 18 usable

responses were obtained. The scale was in paper copy format and covered one side of an A4 sheet. A brief introduction to the mood scale was given at the top of the page, which read, “Below is a list of words that describe feelings. Please read each word carefully and circle the number between 0 to 4 that best describes how you feel now after examining the posters. Please mark a response to each feeling.” The scale used its own standard answer scale: 0 – Not at all, 1 – A little, 2 – Moderately, 3 – Quite a bit, 4 – Extremely.

3.3.4 Overall Phase 2 Educational Intervention and Questionnaire Design Summary

Design theory has shown that posters are a commonly used method to disseminate information briefly in academia since the 1960s, and for much longer in the public domain (Rowe, 2017). An examination of the literature has highlighted that although there is little research which clearly states the precise content design of posters, there are a number of important considerations when designing a poster, in terms of recommendations for style and the information to be included. Literature on these theories frequently focuses on intervention design within healthcare topics (Ashe, Patrick, Stempel, Shi and Brand, 2006; van Landschoot, Portzky and van Heeringen, 2017; Yang and Hsu, 2017; Gerayllo *et al*., 2020) where the issue and its implications can directly impact on individuals’ health, and which is argued to automatically incorporate a fear EA (Gerayllo, Morowatisharifabad, Jouybari, Karimiankakolaki, and Sadeghi, 2020), making the need for attitudinal and behavioural change of heightened importance. Whilst some damage to Cannock Chase AONB could potentially effect users’ health, such as onsite drug abuse, the majority of damage does not have a direct personal impact. As such care was taken

when applying the theoretical design guidance in the literature to the poster development of the present study, given that a fear EA was not used here as discussed in section 2.2.3.2.

DeSilets (2010) discusses the definition of a poster as a document using graphics and text together in a creative way that informs the audience and encourages their engagement with the issues highlighted. Hubenthal, O'Brien and Taber (2011) similarly define posters as being visually appealing by containing decorative qualities, whilst communicating a distilled textual message. Rowe (2017) identifies that a poster should be a mostly visual medium that attracts the readers' attention, have an organised and uncluttered appearance, and be easy to navigate through the contents through a clear direction. Posters must contain a brief message in a large font size and using a consistent font throughout, and which can be understood in a very short amount of time, however, there needs to be sufficient text to provide understanding. This brief message is a summary of the subject's key issues, and that from this brevity motivates viewers to read the information, and both stimulates the needed response and desire to learn more amongst readers. Attention is aimed to be caught within the initial 3-5 seconds by an engaging title of what the poster is about, bold colours and an overall interesting design. In these first seconds, viewers evaluate the poster for if the subject is of interest to them and if it will be worth the time spent reading it.

Briggs (2009), DeSilets (2010) and Austin (2017) argue that for optimum effectiveness the poster must be clear and concise in style and message, with clearly defined segments where content within adheres to sharp clear lines with equal proportions of content. Briggs (2009) and Austin (2017) add that a brief title is advisable in helping draw audience attention to the poster, to encourage further

examination and engagement, and ultimately to improve knowledge and attitudes. Briggs (2009), DeSilets (2010) and Austin (2017) go on to recommend that content must progress from left to right, and also top to bottom (Rowe, 2017), and use a logical progression. It should be eye-catching, and combine text with other more visual data, such as images, and any colours used must be appropriate to the subject material.

The message must be sufficiently detailed but assimilated quickly by the audience. Hence, text should avoid jargon and be large enough to read at a small distance. Images should be labelled as to what they are showing and have appropriate resolution to be equally clear in message and visuals. Consideration during the design process should be given to make the poster accessible for as many people as possible, e.g. people with dyslexia, colour blindness, etc, but within the limitations of the study. Overall, Briggs (2009) and DeSilets (2010) argue that whichever of these considerations are applied, and in what quantity, all must combine to form a poster that is consistent in style and message. Briggs (2009) argues that the poster designer must ultimately use their creative instincts of the topic for the benefit of the study. But as can be seen from the discussions of these authors above, design theory frequently features a number of commonalities covering general poster design principles, and of the overall technical layout designers must use to get viewers' attention. However, little is given in the way of detail over textual and graphical content, or through specific examples.

Yang and Hsu (2017) go further and suggest that the theory of poster design covers three distinct areas; identifying the issue, identifying the implications of the issue, and how this information is presented in the poster. In their study, Yang and Hsu first identified news stories highlighting a need for public behavioural change, in health

and environmental issues, with key subject words about the issue and its implications extracted for textual use in the posters. These words were then used with a single large photo of the issue per poster, which was argued to create a stronger association between the poster and the issue they are publicly raising. A selection of subject-related photos were shortlisted based on Yang and Hsu's knowledge of the subject, and which conveyed the overall message most clearly. From this method four posters were created, two highlighting the dangers of drug abuse, and two examining dangers associated with nuclear disaster. Despite Yang and Hsu not giving their reasons why, they argue that an emotional appeal element is essential in posters, and that the cross-cultural nature of posters allows their message to reach a larger audience than other intervention methods that aim to create behavioural change. Yang and Hsu do not give a rationale behind their specific choice of poster content and design except for use of their understanding of the subject, therefore it is likely that beyond the first two areas of issue and implication identification, the content and design are fully experimentally created.

Hubenthal, O'Brien and Taber (2011) go further still and propose their Cognitive Theory of Multimedia Learning (CTML) which argues poster design must include aesthetic elements, i.e. colour and layout that compliments the subject, an invitation to inquire by creating a reason viewers must learn about a subject, i.e. through a question as the title as seen used by van Landschoot, Portzky and van Heeringen (2017), and a clear and concise message that discusses the issues relating to the subject. Also, their design theory reasons that posters should be image-heavy and text-light which reduces the cognitive load on the viewer and their time investment, making the poster more appealing and likely to be read. Hubenthal, O'Brien and Taber recommend a high ratio of main image size to smaller text areas as a

necessity, citing existing posters in their review where a 25% of poster main image is argued to be less appealing, whilst an image that takes up 70% of the poster was deemed to be more appealing. Finally, Hubenthal, O'Brien and Taber (2011) and Rowe (2017) note the need for an extension to the poster, i.e. inclusion of a website hyperlink where the reader can go to learn more, whilst maintaining a more appealing low text to imagery ratio on the poster itself.

Hubenthal, O'Brien and Taber argue that production of a well-designed poster using CTML can increase subject engagement and attitudes amongst viewers, and that badly designed posters will significantly hinder this engagement. These negative effects of poor poster design can be seen in the study by Ashe *et al*. (2006), whereby an educational intervention poster was created to improve patient behaviours by reducing antibiotic overuse. Whilst Hubenthal, O'Brien and Taber (2011) argued their poster to have a brief textual content, the opposite is true, with the poster containing four large paragraphs of text in a very small font size. In addition, monochromatic colours were used for text and single centrally placed cartoon image, reducing the poster's ability to stand out, and allowing it to be easily overlooked; these design features all being in direct contrast to those outlined in CTML. Ashe *et al*. reported that their poster had been unsuccessful in improving behaviours. Whilst it was acknowledged that no data was collected on whether patients had seen the posters in order to promote a behavioural change, an issue already seen in Kidd *et al*. (2015), the lack of success may be due in larger part to the content and design issues seen.

Whilst Hubenthal, O'Brien and Taber also do not give specific examples of content or design that have proven effective, this again suggests the use of an experimental approach using author subject knowledge creatively, which as can be seen in the

earlier discussions is a reoccurring method in the literature. However, it should be remembered that whatever theoretical principles from the literature may be applied by poster designers, viewers will ultimately judge the poster subjectively, and whether to read on or not, based on their own individual preferences (Rowe, 2017). Despite this subjectivity, and also the reliance on individual author creativity seen in the literature and lack of specific examples, Hubenthal, O'Brien and Taber's CTML offers a much more detailed consideration of poster content and design which was used to guide the intervention of the present study.

From discussion of these design principles, EAs and experimental methods, the present study's visual data element utilised a number of photographs of Cannock Chase incorporating both negative and positive issues, as discussed in sections 2.2.3.1, 2.2.3.3 and 2.2.3.5. The left side of the poster was designed to induce feelings of guilt and disgust towards current issues on Cannock Chase AONB, and following the left to right progression recommendations, the right side was designed to induce feelings such as control and pride over how improved behaviours can benefit the site.

Briggs (2009) discusses that additionally posters are simple and inexpensive to produce, which benefits the present study. The vast creative variety of existing posters examined in Tables 7, 8 and 9 of section 4.2.1 in the content analysis of this study, supports this point by Briggs, who as well as DeSilets (2010) recommends that further research is needed into effective poster design. Based on these findings and those discussed in sections 2.2.1 and 2.2.4, the present study created an electronic intervention poster using an experimental design for testing and analysis. As discussed in section 2.2.3, the experimental intervention for the present study incorporated a mixed positive and negative emotional appeal (EA), where control

and pride were used as positive EAs, and guilt and disgust were used as negative EAs, which authors have argued more research is needed into (Huhmann and Brotherton, 1997; Shimp and Stuart, 2004; Roozen, 2013; Kruger *et al.*, 2015; Previte, Russell-Bennett and Parkinson, 2015; Septianto and Tjiptono, 2019).

Au *et al*. (2015) have discussed the benefits of using electronic interventions and posters (Kidd *et al.*, 2015) to improve attitudes, together with recommendations for content as discussed above. Very few posters used by UK mainland AONBs are in operation that are available for online public reference as discussed in section 4.2.1, as this study discovered that of the 38 UK mainland AONB sites, 17 did not use any form of public facing electronic poster. These findings provided further justification for use of an experimentally designed electronic poster as intervention within this present study to examine if it can activate pro-environmental attitudinal change.

The literature concerning educational interventions has highlighted a number of formats researchers use to convey their message with the intention of persuading cognitive and behavioural improvements, with a range of successes, as discussed above. These successful formats have been seen to be firmly tailored to the specific requirements, and constraints, of their individual studies. In terms of the present study, the majority of Cannock Chase AONB park users use the site briefly for between 0-3hrs per visit (Cannock Chase AONB, 2000; 2012), making lengthy intervention delivery and those that need to be “taught” in a lecture setting impractical (Sohn *et al.*, 2011).

There is also the argument for accessibility of the intervention. Whilst Cannock Chase usage surveys have not collected data on highest qualifications of participants (Cannock Chase AONB, 2000; 2012), and in line with the varied

population sample characteristics found in many other studies (Bjerke, Thrane and Kleiven, 2006; Pienaar, Lew and Wallmo, 2014; Au *et al.*, 2015; Ntanos *et al.*, 2018), it must be assumed that users have a variety of educational backgrounds. Therefore, the content of the present study's intervention was designed to be fully accessible to all groups. The park usage surveys have not collected information about users with a disability/disabilities, reinforcing the need for a fully accessible intervention by all, as recommended by Kim, Airey and Szivas (2011).

For these requirements, the image-heavy and text-light poster style format as used by Kidd *et al.* (2015) and by Previte, Russell-Bennett and Parkinson (2015) appears most beneficial, as recommended in design theory literature. This format combines a design which conveys the message concisely and quickly, whilst also being accessible to the majority of users through use of images and colour to primarily communicate the message. These predominantly image-based formats are already used frequently in large scale marketing campaigns (Huhmann and Brotherton, 1997), and which Huhmann and Brotherton (1997) and Ruby and Rozin (2018) have called for more academic research into. Based on these findings, the present study's intervention used an image-heavy and text-light format. Specifically to the present study, Felver *et al*. (2015) suggest that negative emotions can be changed by use of an intervention that requires participants to contemplate the issue, which the present intervention has incorporated via the use of images of Cannock Chase AONB that provide a clear message of the issues the site currently faces. The use of brief minute-scale interventions, as successfully used in Kidd *et al.* (2015), and by Au *et al.* (2015) which used a 15-20min design, further aided accessibility to more of the park's user population by largely removing time constraints of participation in the

survey. The present study has contribute new knowledge to the field by using a 10-15min duration intervention and questionnaire combination.

Online interventions are being increasingly examined within the literature, and offer a cost efficient (Briggs, 2009), alternative and more accessible delivery method to more traditional formats, including on-site/off-site taught sessions (Sohn *et al*., 2011; Kidd *et al.,* 2015), practical classes (Hutchinson *et al.,* 2015) and paper copy information (Kidd *et al.,* 2015). This accessibility extended participation to a much larger proportion of Cannock Chase's user population, both locally and nationally across the UK with the increased national internet usage discussed in section 2.2.1. Due to resource constraints of the present study, intervention delivery was unfeasible through traditional delivery routes. Online interventions further improve accessibility as language and regional accent barriers are reduced by use of images and text, and further so by emphasis on images as the primary information source, for any participants with reading difficulties.

Based on the common study method as discussed throughout section 2, the present study conducted a pilot study of the experimental intervention that was developed and used, with feedback used to develop the final draft of the poster. Similarly as in section 3.2.3, the Phase 2 intervention pilot study recruited participants from off-site who may be users and/or non-users of Cannock Chase AONB. As argued by Briggs (2009), the researcher who is working as experimental poster designer must ultimately use their creative instincts and knowledge of the topic for the benefit of the study. To support this recommendation, the present study's intervention used an experimental design, and all information specific to the site was already provided by the author, with further guidance provided by the qualitative and quantitative data collection of Phase 1. Therefore, further on-site specific input was not needed, as the

pilot study solely examined the poster for its understandability, transfer of central messages, and any minor errors for correction.

Schwarzer *et al.* (2016) and Jansen and van Schaik (2018) have used longitudinal survey formats to determine how effective interventions and EAs are over time, with studies showing this method to be a successful measure. Dunlap *et al*. (2000), Schwarzer *et al.* (2016) and Jansen and van Schaik (2018) go on to recommend that further research is conducted into longitudinal interventions to determine the optimum time period of efficacy. From these optimum practices it is possible to bring benefits to many subjects, including parklands where researchers can identify when interventions may need to be renewed or amended to help encourage pro-environmental attitudes and behaviours.

Similarly to the format methods that will be used in this present study, Au *et al*. (2015) also combined a similar set of methods within their study, using a four month longitudinal survey together with online delivery of their experimental intervention and pre and post-test questionnaires; participants were recruited on a national scale and used a sample size of comparable number to those used in other studies, as discussed in section 2.2.1, and use of a brief intervention that takes a few minutes to complete. This intervention format was shown to be effective in improving the knowledge base of participants with significant improvements to attitudes and behaviours and which lasted longer, as compared to those who received a more traditional intervention and delivery format. The present study has taken on board the recommendations for further research into specific format elements from the literature, and applied them in combination and to successful effect.

The present study similarly took on board the literature's recommendations and utilised a combination of format elements, and recommendations by Au *et al*. (2015). To extend on this previous research, the present study used an intervention within a parkland setting with use of a six month follow-up to provide a new contribution to knowledge. The present study's longitudinal intervention used an online delivery method, with invitations containing the web link to the poster and initial questionnaire emailed to participants, with two follow-up questionnaires emailed to the same participants at two months and six months after they received the initial email. The same questionnaire as used in Phase 1 was used in Phase 2 to ensure measure consistency, and as it is the same, all questionnaire testing was completed in Phase 1 so no further testing was needed in Phase 2.

As discussed in section 3.2.3 and highlighted in Greaves, Zibarras and Stride (2013) and Mtutu and Thondhlana (2015), it is vitally important to ensure anonymous response conditions, to rule out social desirability bias. Again, whilst not openly acknowledged across the literature generally, this is a common reoccurring procedure in a variety of intervention and questionnaire formats, such as in the use of electronic questionnaires emailed to participants (Greaves, Zibarras and Stride, 2013). Whilst the electronic format conditions and resource limitations of the present study cannot guarantee it, the research team actively maximised anonymous responses by highlighting this in the introductory text of each of the three email invites (Appendix 8). These near identical introductions contained information on what the intervention study was about, that participants needed to view the poster prior to completing the first questionnaire, and what data the questionnaires sought to collect. Further information was on the voluntary nature of participation, to reassure participants that responses were confidential, and research team contact

details should participants wish to know more or provide general feedback. Each email contained information on what stage of the intervention the participant is at and what stages were still remaining, with an indication on when they would need to complete further participation over the coming months, plus the web link to the intervention.

Further to the intervention design outlined for use, the literature makes use of a variety of sample methods, which again are based upon the requirements and limitations of individual studies. As discussed in the present study, a common method used in remote, non-face to face data collection is purposive sampling, as has been used by Bjerke, Thrane and Kleiven (2006) and Schwarzer *et al.* (2016). This sampling method is particularly useful due to the geographical location of Cannock Chase AONB user groups, as seen in Cannock Chase AONB (2000; 2012), where the vast majority of site users live within a few miles of the site. Therefore, in the present study, the vast majority of the sample group were purposely selected from the onsite resident and employment population, and from the resident, visitor and employment population within the immediate few miles radius of the site. In order to capture responses from the minority of visitors who live beyond this immediate radius, the present study used a random sampling method as used by Lopez-Mosquera and Sanchez (2011); Buta, Brennan and Holland (2012); Hutchinson *et al.* (2015) and Song, Zhao and Zhang (2018), among others. This method has been shown to be useful in selecting potential participants from very large populations of across large cities to national scale populations, as is the case for Cannock Chase AONB, and thus so too for the present study. A snowballing method was also employed, as used by Buta, Brennan and Holland (2012) and Previte, Russell-Bennett and Parkinson (2015), and as outlined in section 3.2.3. As

discussed in this prior section, snowballing from the random sampling method allow both the sample population to be increased, and the risk of bias to be removed in the present study.

3.3.5 Overall Sample Sizing

As discussed in section 3.2.4, and similarly seen in section 2.2.1, the existing literature is inconsistent as to the sample size number that studies use in either: 1) a qualitative pilot study or 2) a quantitative primary research element. From the literature, sample sizes that used have been: 6 (Giles-Corti *et al*., 2005), 13 (Sullivan *et al*., 2019), 15 (Beil and Hanes, 2013), 24 (Buta, Brennan and Holland, 2012), 30 (Lopez-Mosquera and Sanchez, 2011), 39 (Gilchrist, Brown and Montarzino, 2015). In line with these, the present study recruited a sample group within this region from on-site users of Cannock Chase AONB for the pilot study of the intervention poster.

A number of studies have used different quantitative survey sample sizes with varying success, such as the study by Sohn *et al*. (2011) which used 21 respondents, and had partial success in its research aims, but was potentially limited due to its largely homogenous sample, and it could be argued it is too small sample size. Similar findings were found by Hutchinson *et al*., (2015) who used a two group sample of 373 and 404 and found their two groups to be too homogenous prior to the start of the test. Kidd *et al*. (2015) successfully used a sample of 339 respondents; Au *et al*. (2015) successfully used a two group sample of 231 and 359; Schwarzer *et al*. (2016) used a 112 person sample; Roozen (2013) successfully used a 212 sample group and a 216 sample was used by Previte, Russell-Bennett and Parkinson (2015). The study by Liaw *et al*. (2014) successfully used two group

samples of 23 and 79, whilst Lee (2017) used a 94 person sample, and 25 by Shimp and Stuart (2004), although again these studies' sample sizes could be argued as being too small a population sample to be fully representative, which is widely acknowledged in the literature as an issue. Beitelspacher *et al*. (2012) used a sample of respondents across four groups of 310, 30, 30 and 30 in their study which achieved some success. Beitelspacher *et al*. (2012) acknowledged that to satisfy tests of internal validity, sample sizes need to be a minimum of 30 per group.

Again, as in section 3.2.4, care must be taken to ensure as unbiased a sample is taken as possible, as discussed above and seen in Gadenne *et al*. (2011). In this regard, the sample chosen in this present study was of sufficient number, and fully representative of Cannock Chase AONB's user population to be reliable, which for phase 2 of the present study only included user groups of the park. The present study recruited a sample of approximately 200 participants for each of the three stages: 1) the poster followed by the initial questionnaire, 2) the two month follow-up questionnaire, and 3) the six month follow-up questionnaire, which is within the region that has been successfully used in the studies discussed above to yield reliable results.

3.3.6 Intervention Study

The intervention pilot study feedback from the end of section 3.2.2 was actioned, and included in the most popular design for the final draft intervention poster, as voted for by pilot study participants. The negative left half of the poster used a grey background overlaid by the labelled colour photographs. Images used on the left side of the portrait oriented poster were of: 1) (top) a close-up image of a visibly

dead hedgehog lying on the muddy verge of a road, labelled “Wildlife Car Fatalities”, 2) (middle) a wider image of an extinguished fire containing a large broken tree branch, a mixture of loose litter and a bulging ragged bag of litter in a grassy area, labelled “Littering, Arson & Habitat Destruction”, 3) (base) a close-up image of a large amount of dog waste amongst short grass and flowers, labelled “Dog Fouling”. Positive colour photographs used on the right side of the poster over a green background were of: 1) (top) a close-up of a live hedgehog in a grassy space, labelled “Wildlife Alive and Well”, 2) (middle) a wider image of a flat soil pathway amongst grass, trees and flowering shrubs on either side with a public right of way sign by the path under blue skies, labelled “Clear and Thriving”, 3) (base) a wider image of a small hill covered in long grass ferns, flowering heather with a tree on the hill top all under a wide blue sky, labelled “Free from Fouling”.

The positive and negative halves were divided by a dashed black line with a small black silhouette of a pair of scissors over the middle of the dashed line. On the negative side of the dashed line, and placed lower down, was included the slogan, “Cut and Curb” in black font capital letters. Similarly on the positive side but higher up the dashed line was included the slogan, “Tear and Share”; the slogans were used to further emphasise the negative and positive messages being delivered. The poster title was included in large black font using capital letters and was centrally aligned at the top of the page across both halves. The title reads, “How Cannock Chase AONB Looks Is Up To You”. The base of the poster included a message that ran across both halves of the poster in lower case black font. This message included a web link for where participants can seek further information, which read, “For more information please visit the official Cannock Chase AONB website at http://www.cannock-chase.co.uk/”.

The educational intervention, questionnaire and BRUMS scale, together with textual instructions for participants (Appendix 8) were emailed to potential participants identified through a combination of purposive sampling of the areas surrounding the park. Participants were also identified through random sampling of individuals and groups across mainland UK from a large variety of employment and interest areas. These two sampling methods were extended by the snowballing technique to other individuals and groups within the surrounding area, and other employment and interest areas. Invitation emails were sent from July 2017 to April 2019, and took approximately 10-15mins for individuals to complete. 2237 emails for the intervention and initial questionnaire were sent, decreasing to 2215 sent out for the first follow-up questionnaire and 2203 sent out for the final follow-up questionnaire. In total, 640 responses were collected: 234 of the initial questionnaire, 196 of the first follow-up and 210 of the final follow-up questionnaire. This represents a response rate of 10.46% (0 months), 8.85% (2 months) and 9.53% (6 months). The discussion in this section, and also from sections 3.3.1 to 3.3.5 fulfilling Objective three of Aim two.

Chapter Four

Results

4.0 Introduction to the Chapter

Due to the nature of the subject being examined, the present study is ordered into two distinct stages, termed here as Phases. This section will first discuss the results of the pilot study and final study test stages of Phase 1, followed by a discussion of the pilot studies and final study test stages used in Phase 2.

4.1 Results of Phase 1 Study

This section will discuss the feedback obtained from the initial interviews that were collected to identify common themes from issues experienced by Cannock Chase AONB users. This will be followed by analysis of the feedback obtained from the quantitative questionnaire pilot study and discussion of results from the final study.

4.1.1 Results of Qualitative Interviews

Participants, as a direct reflection of the population available on site, were mainly Caucasian, and approximately between early 40s to early 70s in age. The 32 interviews highlighted a number of positive and negative reoccurring themes amongst participants. Positive themes included:

- Park is free to access
- Means a lot to people
- Park is well managed/has a good environment

- Single and multi-activity paths/routes that are signposted
- Many places on site users can visit
- Good facilities
- Is close to where visitors live
- Users can learn about the park
- It is important to preserve the park for future generations

Negative themes included:

- Poor etiquette of other activity groups
- Littering/dog fouling
- Fees for car parking
- Soil erosion
- Damage to the park caused by other site users
- Insufficient facilities on-site
- Individuals only do what pro-environmental behaviour they have to do on and off-site
- Air pollution from driving car to site

These positive and negative themes provided guidance for the development of questions for the draft questionnaire.

4.1.2 Results of Quantitative Questionnaire: Pilot Study

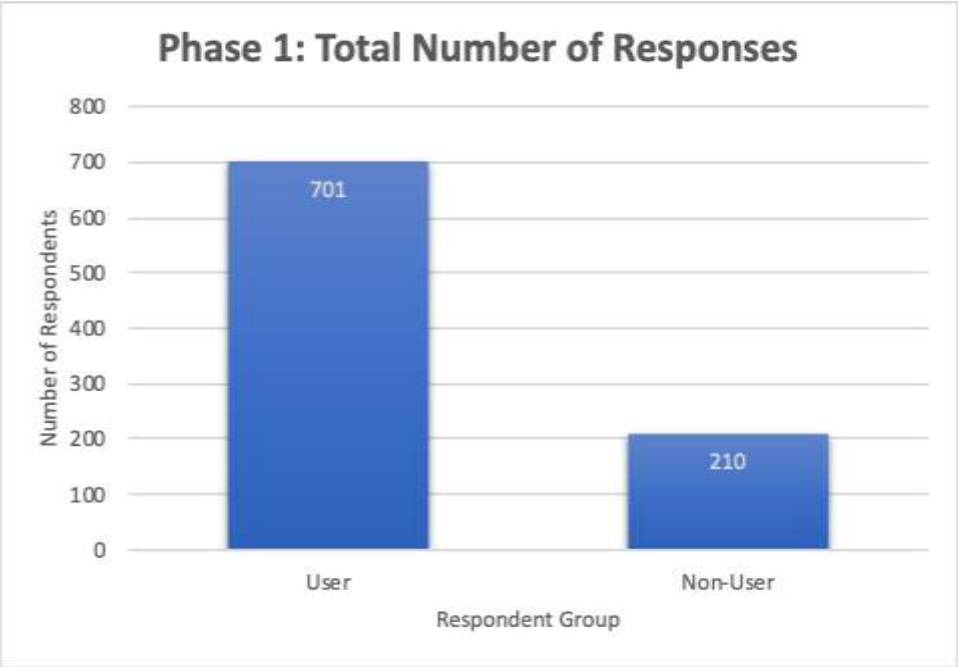
Feedback from the pilot study highlighted a number of positive things about the questionnaire, and some minor areas for amendment. The commonly occurring positive feedback discussed:

- Questionnaire is quick and easy to complete and only takes a few minutes
- Questionnaire is easy to understand

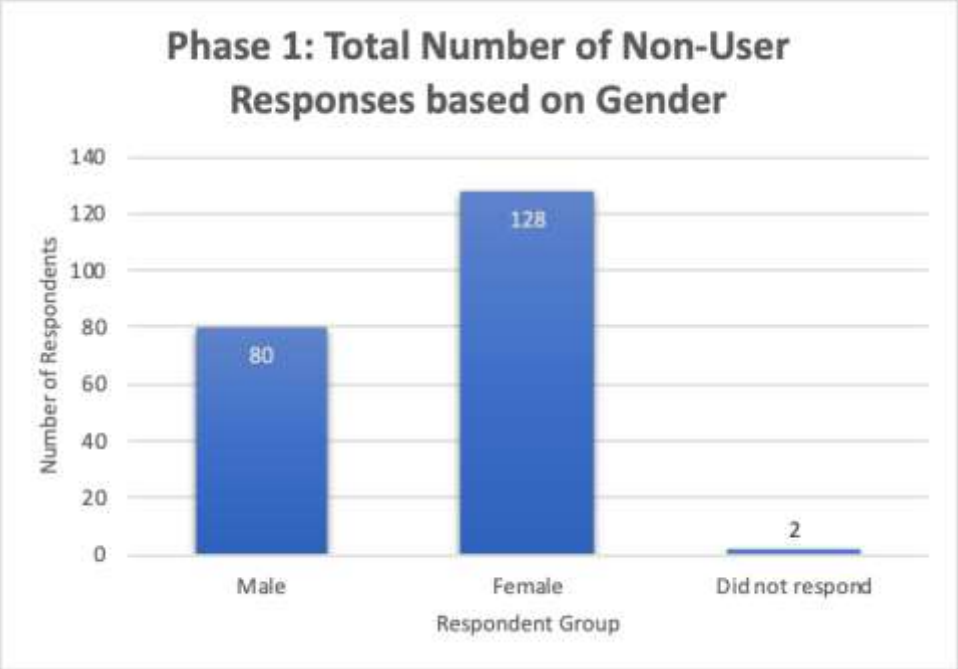
Amendments required for the final draft that commonly featured in the feedback:

- Group all Cannock Chase AONB specific questions together to improve the overall flow
- Further clarity needed for some statements

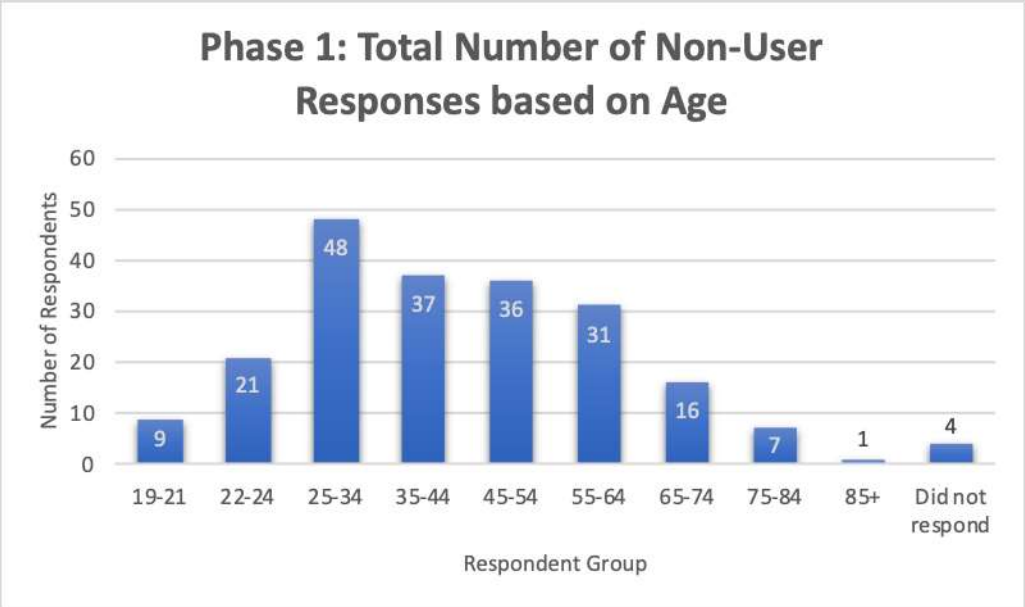
4.1.3 Results of Quantitative Questionnaire



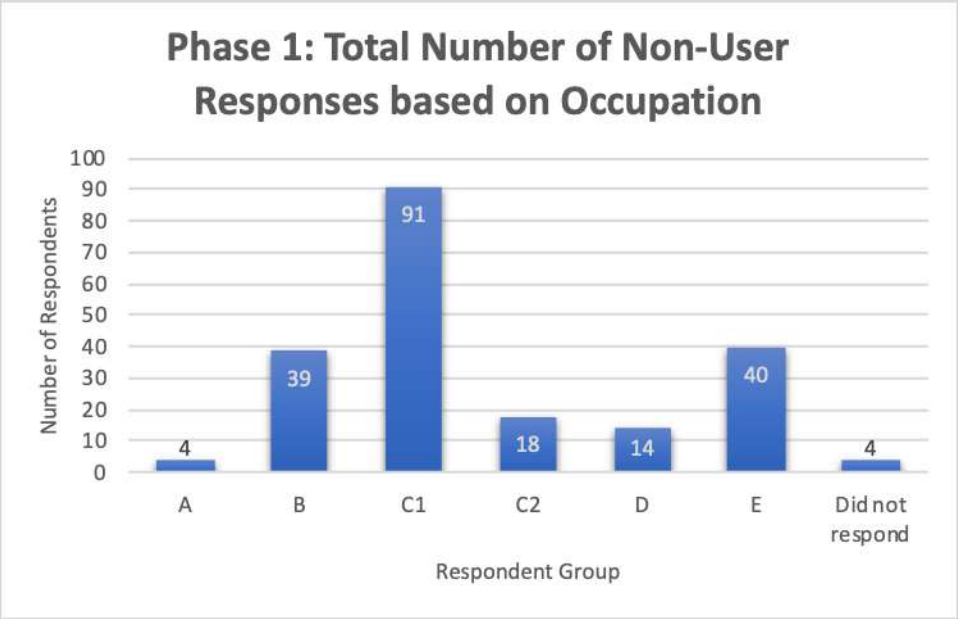
Graph 1: Phase 1 total number of User and Non-User responses



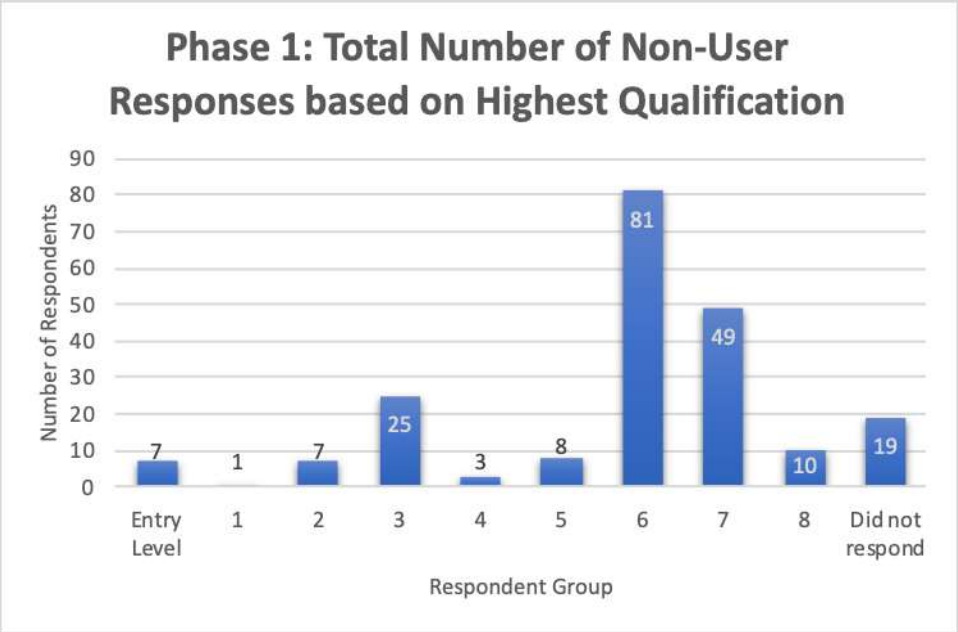
Graph 2: Phase 1 total number of Non-User responses based on Gender



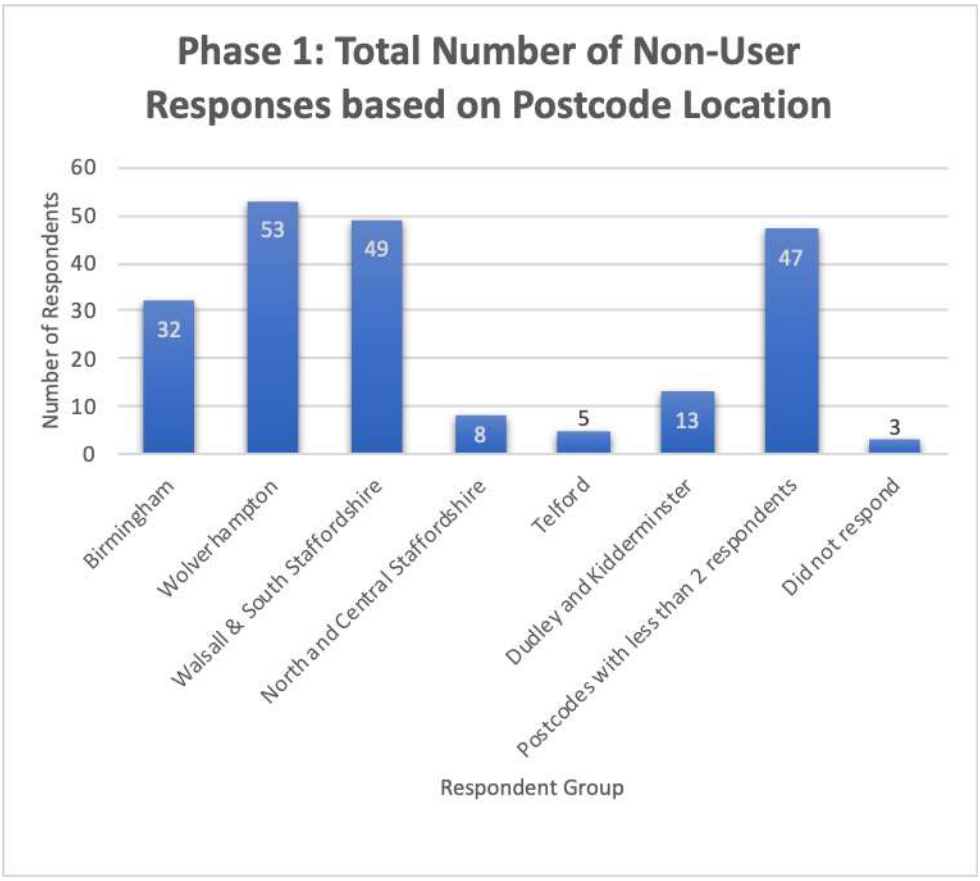
Graph 3: Phase 1 total number of Non-User responses based on Age



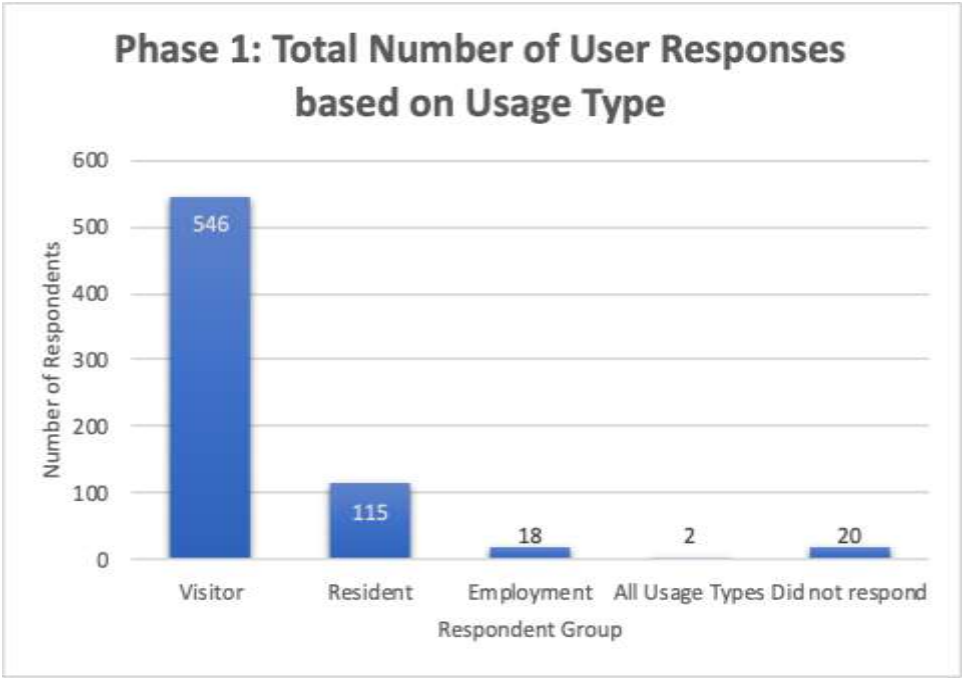
Graph 4: Phase 1 total number of Non-User responses based on Occupation



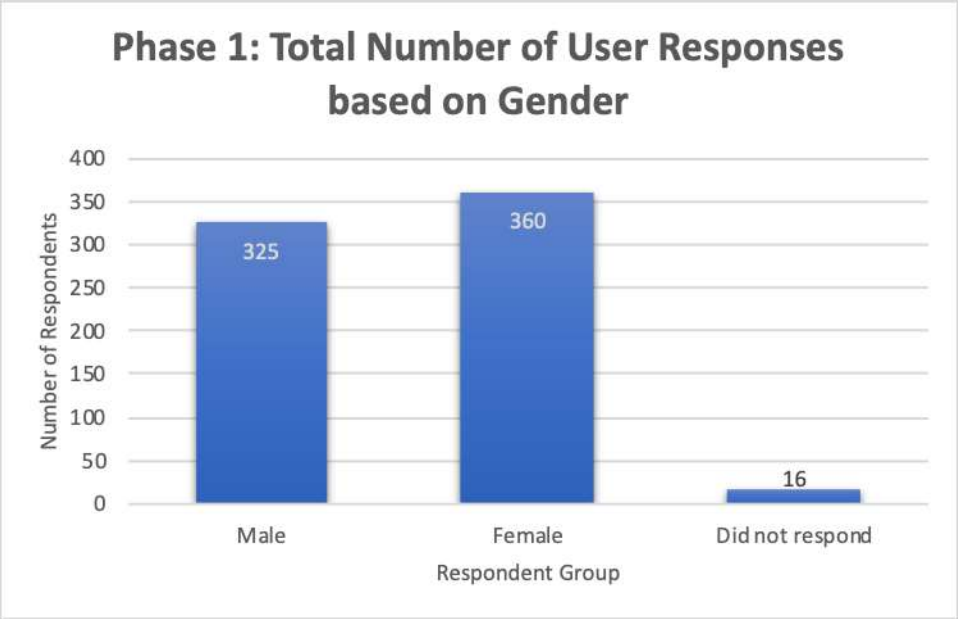
Graph 5: Phase 1 total number of Non-User responses based on Highest Qualification



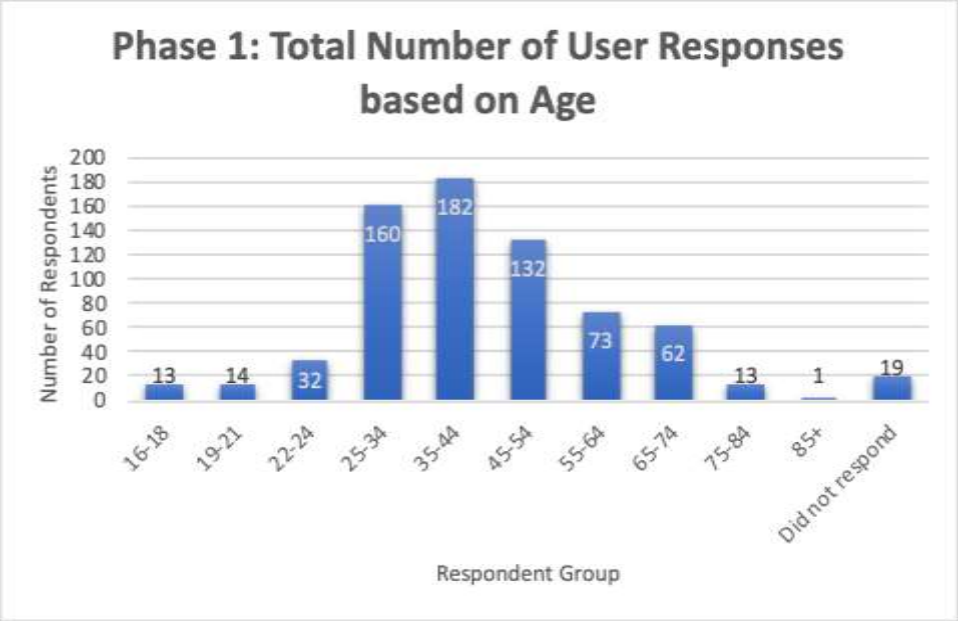
Graph 6: Phase 1 total number of Non-User responses based on Postcode Location



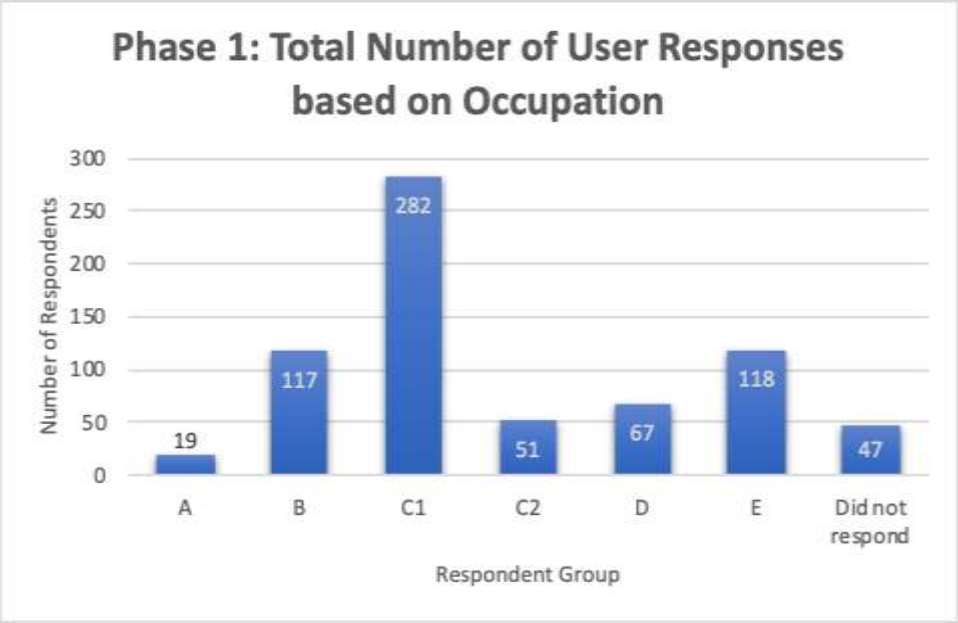
Graph 7: Phase 1 total number of User responses based on Usage Type



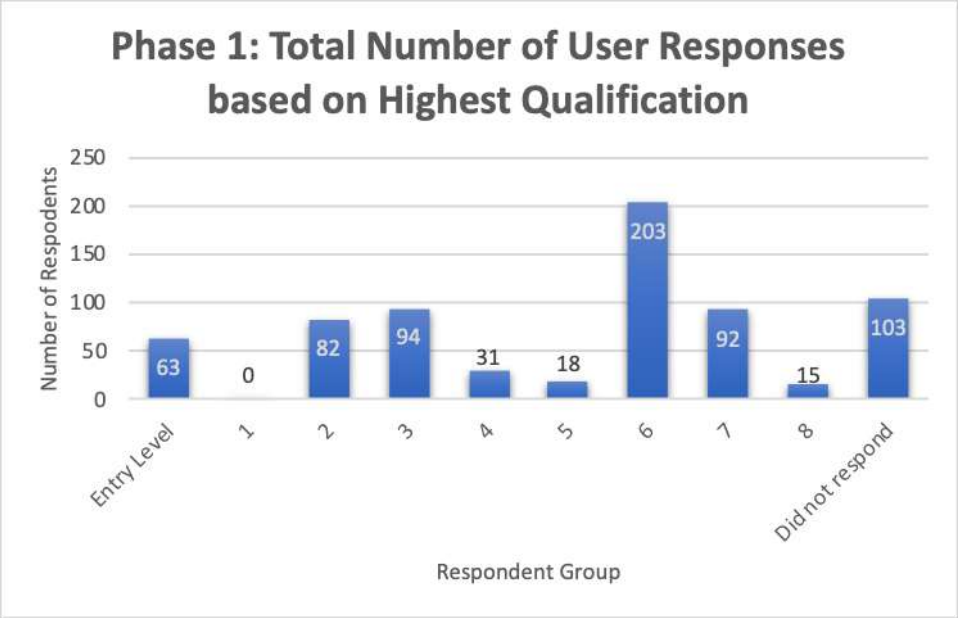
Graph 8: Phase 1 total number of User responses based on Gender



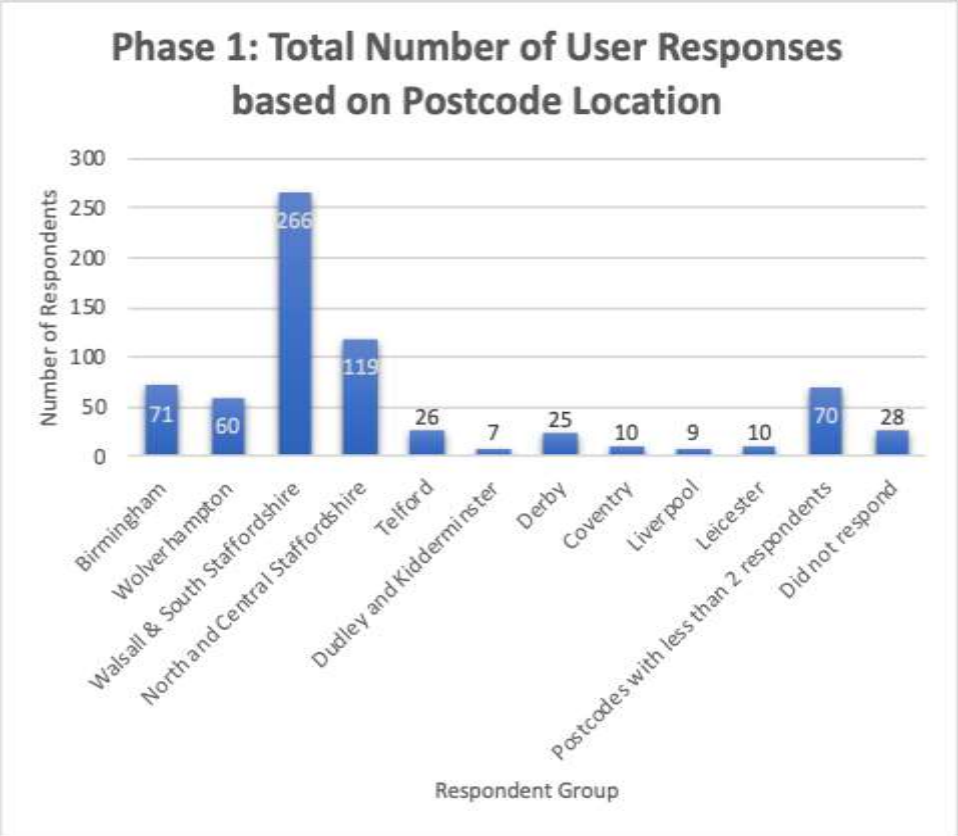
Graph 9: Phase 1 total number of User responses based on Age



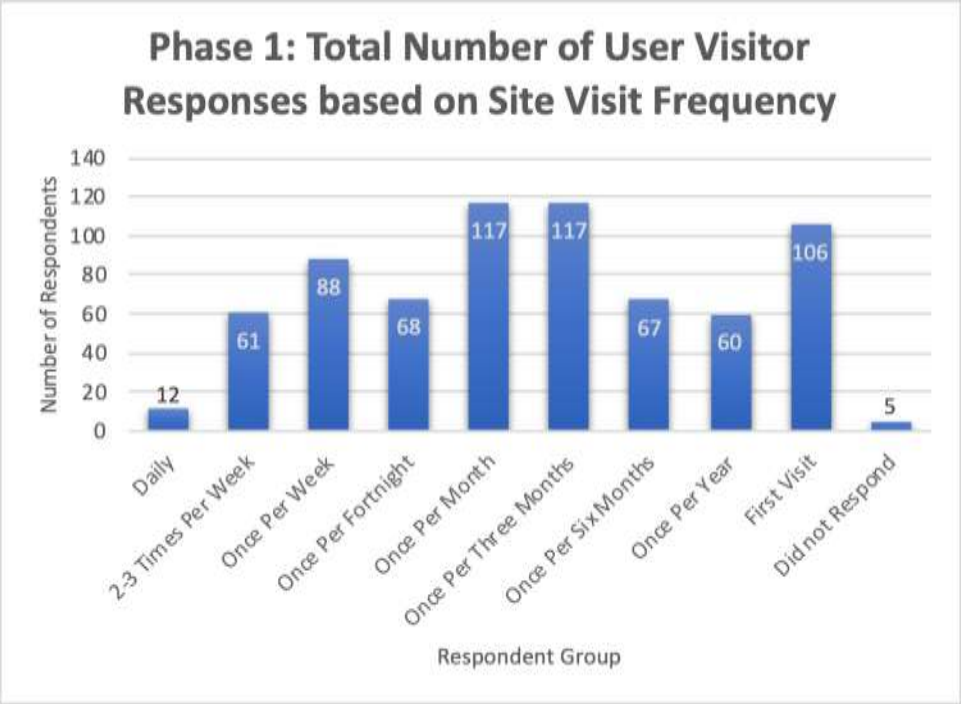
Graph 10: Phase 1 total number of User responses based on Occupation



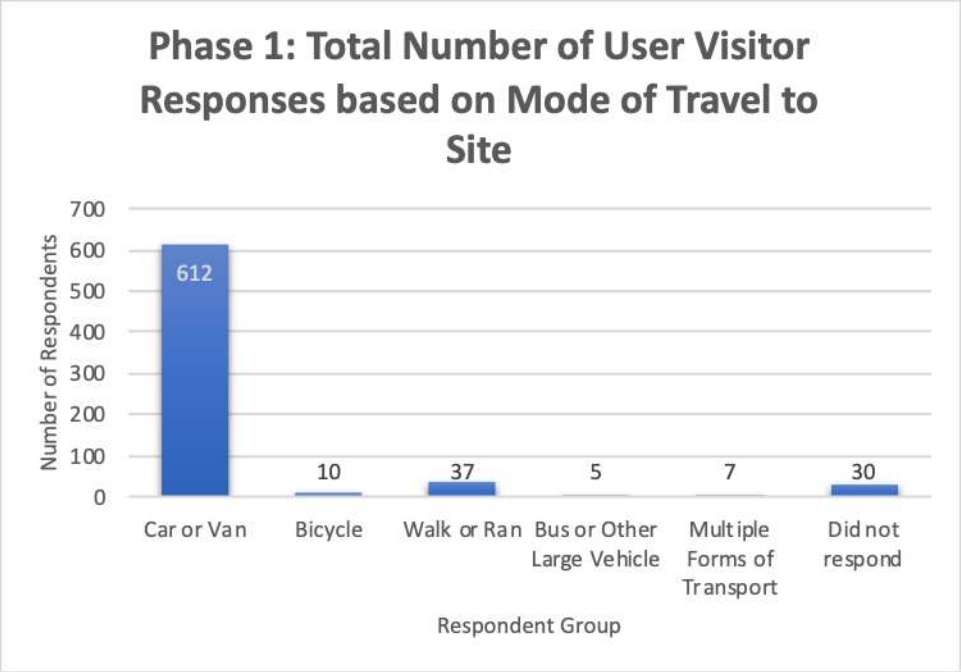
Graph 11: Phase 1 total number of User responses based on Highest Qualification



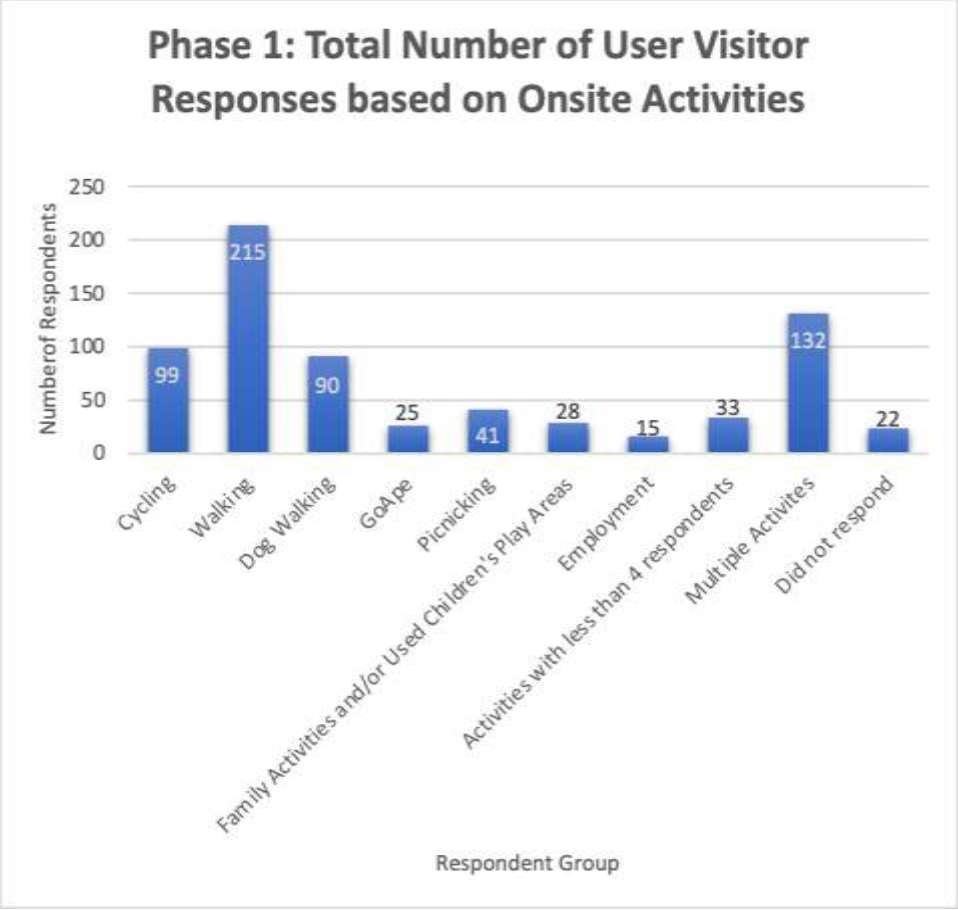
Graph 12: Phase 1 total number of User responses based on Postcode Location



Graph 13: Phase 1 total number of User Visitor responses based on Site Visit Frequency



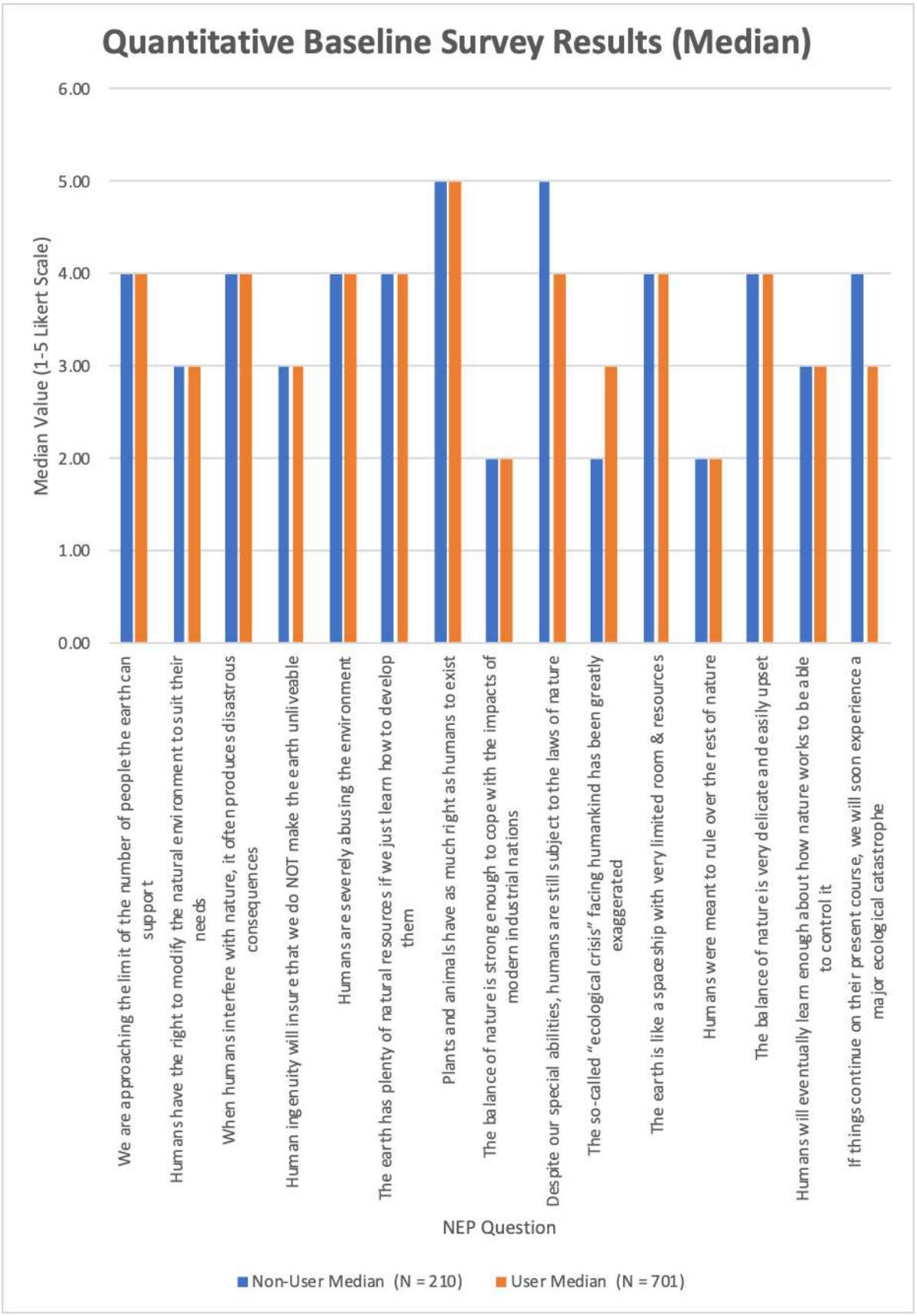
Graph 14: Phase 1 total number of User Visitor responses based on Mode of Travel to Site



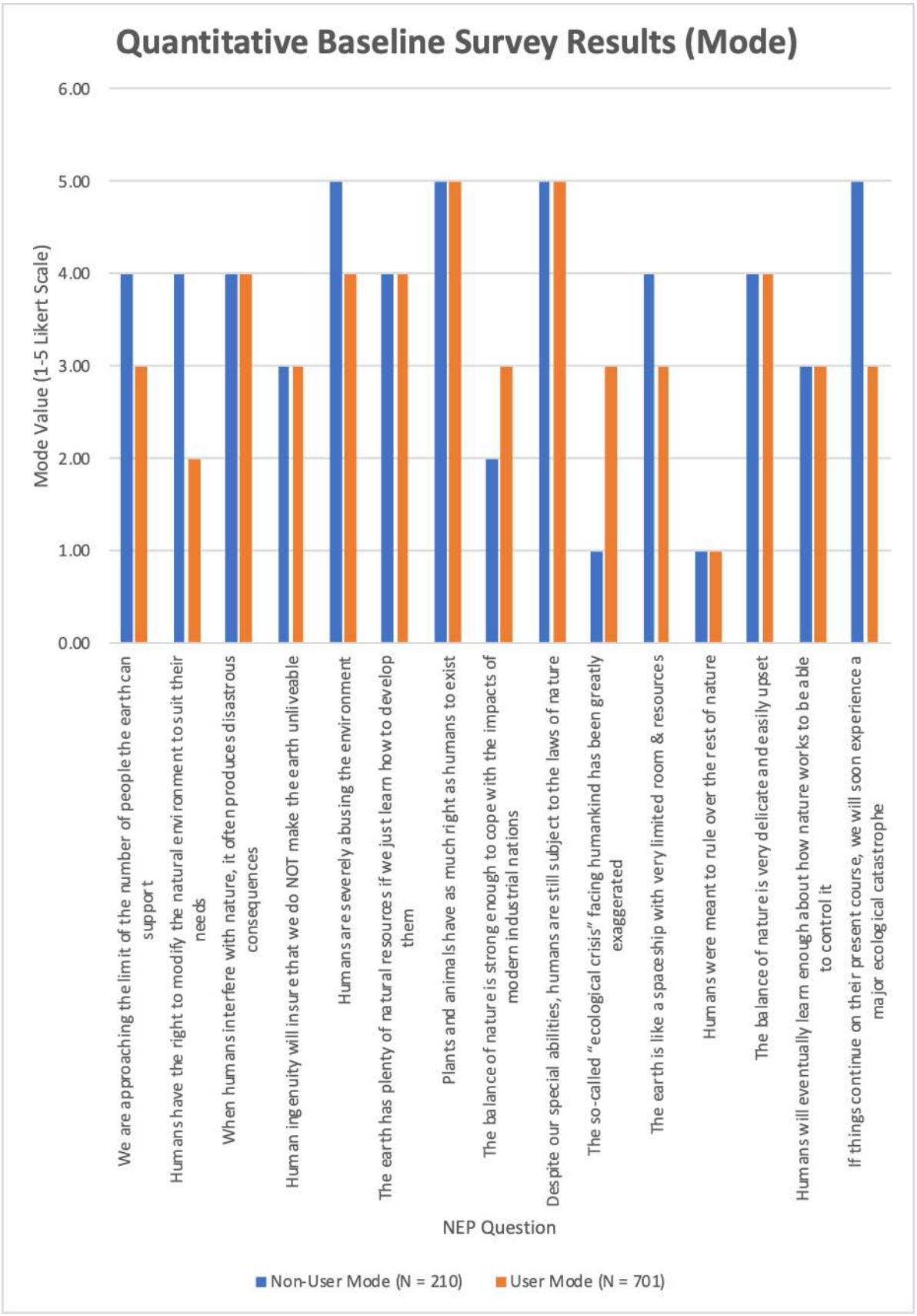
Graph 15: Phase 1 total number of User Visitor responses based on Onsite Activities

	New Ecological Paradigm (NEP) Question	Non-User Median (N = 210)	User Median (N = 701)	Non-User Mode (N = 210)	User Mode (N = 701)
1	We are approaching the limit of the number of people the earth can support	4.00	4.00	4.00	3.00
2	Humans have the right to modify the natural environment to suit their needs	3.00	3.00	4.00	2.00
3	When humans interfere with nature, it often produces disastrous consequences	4.00	4.00	4.00	4.00
4	Human ingenuity will insure that we do NOT make the earth unliveable	3.00	3.00	3.00	3.00
5	Humans are severely abusing the environment	4.00	4.00	5.00	4.00
6	The earth has plenty of natural resources if we just learn how to develop them	4.00	4.00	4.00	4.00
7	Plants and animals have as much right as humans to exist	5.00	5.00	5.00	5.00
8	The balance of nature is strong enough to cope with the impacts of modern industrial nations	2.00	2.00	2.00	3.00
9	Despite our special abilities, humans are still subject to the laws of nature	5.00	4.00	5.00	5.00
10	The so-called “ecological crisis” facing humankind has been greatly exaggerated	2.00	3.00	1.00	3.00
11	The earth is like a spaceship with very limited room & resources	4.00	4.00	4.00	3.00
12	Humans were meant to rule over the rest of nature	2.00	2.00	1.00	1.00
13	The balance of nature is very delicate and easily upset	4.00	4.00	4.00	4.00
14	Humans will eventually learn enough about how nature works to be able to control it	3.00	3.00	3.00	3.00
15	If things continue on their present course, we will soon experience a major ecological catastrophe	4.00	3.00	5.00	3.00

Table 6: Median and Mode values across Cannock Chase AONB User and Non-User Groups



Graph 16: Median NEP values of non-user and baseline user scores



Graph 17: Mode NEP values of non-user and baseline user scores

The Likert scale used in the questionnaires assigned Strongly Disagree the code of 1, Mildly Disagree the code of 2, neither Agree or Disagree the code of 3, Mildly Agree the code of 4 and Strongly Agree the code of 5. Agreement with the odd numbered questions on the NEP scale (higher scores), and disagreement with the even numbered questions (lower scores) indicates a pro-environmental world view (Dunlap *et al*., 2000).

As seen in Table 6 and in Graphs 16 and 17, median and mode NEP question scores indicate that non-users overall are more pro-environmentally friendly than park users. Whilst many median and mode scores are the same across categories of the group values of this section, non-users median scores are more pro-environmental in three of the fifteen questions, and non-users modal scores are more pro-environmental in six of the fifteen questions (Appendix 4, Table 32). Appendix 4, Table 33 indicates that Chi-square results for thirteen of the fifteen NEP questions had positively significant differences between responses based on user/non-user status at $p<0.05$, and six of the fifteen NEP questions had positively significant differences between responses based on user/non-user status at $p<0.001$. Additionally, in measuring the strength of association between the variables, and as there are two response categories, the Phi Coefficient values lie between 0.092 and 0.192. Together with the Chi-squared results, this indicates a positive weak association that is statistically significant but little variation is explained in predicting pro-environmental attitudes from respondent group categories, in this case user/non-user status. Overall, these results indicate that user/non-user status is a very strong indicator of pro-environmental attitudes. Median, modal (Table 6), Chi-square and Phi Coefficient values (Table 33) of the NEP responses of non-users with Cannock Chase AONB users indicates that users hold less environmentally

friendly attitudes, which as argued by Dunlap *et al*. (2000), Bjerke, Thrane and Kleiven (2006) and Maleki and Karimzadeh (2011) directly influences behaviours. These results provide justification for the use of an educational intervention as part of the present study.

In examining the level of pro-environmental attitudes amongst the different social demographic categories within the entire user response sample, the Median NEP question scores for gender indicates males are more pro-environmental in three of the fifteen NEP questions, and identical scores for males and females in twelve questions. Modal NEP scores indicate males are more pro-environmental in five of the questions, females are more pro-environmental in one question, with identical scores for males and females in nine questions (Appendix 4, Table 34). Chi-square results for nine of the fifteen NEP questions had positively significant differences between responses based on gender at $p<0.05$, and one of the fifteen NEP questions had a positively significant difference between responses at $p<0.001$. The Phi Coefficient values lie between 0.081 and 0.176 (Appendix 4, Table 35). Together with the Chi-squared results, this indicates a positive weak association that is statistically significant but little variation is explained. These indicate that gender is strong indicator of pro-environmental attitudes.

Median NEP scores indicate age categories 65-74 and 75-84 are more pro-environmental, and category 25-34 is less pro-environmental. Modal NEP scores indicate age categories 45-54, 65-74 and 75-84 are more pro-environmental, and category 25-34 are less pro-environmental (Appendix 4, Table 36). Chi-square results for seven of the fifteen NEP questions had positively significant differences between responses based on age at $p<0.05$, and one of the fifteen NEP questions had a positively significant difference between responses at $p<0.001$. As there are

more than two response categories for this group, Cramer's V values lie between 0.110 and 0.156 (Appendix 4, Table 37). Together with the Chi-squared results, this indicates a positive weak association that is statistically significant but little variation is explained. These indicate that age is a moderate indicator of pro-environmental attitudes.

Median NEP scores indicate occupation categories A, B, D and E are more pro-environmental, and category C2 is less pro-environmental. Modal NEP scores indicate occupation categories D and E are more pro-environmental, and category C1 is less pro-environmental (Appendix 4, Table 38). Chi-square results for four of the fifteen NEP questions had positively significant differences between responses based on occupation at $p<0.05$, and none of the fifteen NEP questions had a positively significant difference between responses at $p<0.001$. Cramer's V values lie between 0.110 and 0.156 (Appendix 4, Table 39). Together with the Chi-squared results, this indicates a positive weak association that is statistically significant but little variation is explained. These indicate that occupation is a weak indicator of pro-environmental attitudes.

Median NEP scores indicate highest academic qualification categories Levels 4 and 8 are more pro-environmental, and category Level 2 is less pro-environmental. Modal NEP scores indicate highest academic qualification categories Levels 7 and 8 are more pro-environmental, and category Level 3 is less pro-environmental (Appendix 4, Table 40). Chi-square results for four of the fifteen NEP questions had positively significant differences between responses based on highest academic qualification at $p<0.05$, and none of the fifteen NEP questions had a positively significant difference between responses at $p<0.001$. Cramer's V values lie between 0.091 and 0.158 (Appendix 4, Table 41). Together with the Chi-squared results, this

indicates a positive weak association that is statistically significant but little variation is explained. These indicate that highest academic qualification is a weak indicator of pro-environmental attitudes.

The vast majority of postcodes recorded have very few participants citing them as their postcode. The post codes that have received ten or more participants each are: B (Birmingham area), DE (Derby area), LE (Leicester area), ST (North and Central Staffordshire areas), TF (Telford area), WS (Walsall and South Staffordshire areas) and WV (Wolverhampton area). Median NEP scores indicate postcodes B, ST, WS and WV are more pro-environmental, and LE and TF are less pro-environmental. Modal NEP scores indicate postcodes ST, WS and WV are more pro-environmental, and LE and TF are less pro-environmental (Appendix 4, Table 42). Chi-square results for two of the fifteen NEP questions had positively significant differences between responses based on home postcode at $p<0.05$, and none of the fifteen NEP questions had a positively significant difference between responses at $p<0.001$. Cramer's V values lie between 0.219 and 0.309 (Appendix 4, Table 43). Together with the Chi-squared results, this indicates a positive weak to moderate association that is statistically significant, but as most values are weak therefore little variation is explained. These indicate that postcode is a very weak indicator of pro-environmental attitudes.

Median NEP scores are largely similar across visit frequency categories. Of these the mid-range frequencies of 2/3 times per week to once every three months are more pro-environmental, and the very high and very low frequencies are less pro-environmental; this being broadly similar for modal values also (Appendix 4, Table 44). Chi-square results for five of the fifteen NEP questions had positively significant differences between responses based on visit frequency at $p<0.05$, and one of the

fifteen NEP questions had a positively significant difference between responses at $p<0.001$. Cramer's V values lie between 0.097 and 0.156 (Appendix 4, Table 45). Together with the Chi-squared results, this indicates a positive weak association that is statistically significant but little variation is explained. These indicate that visit frequency is a weak to moderate indicator of pro-environmental attitudes.

Of the modes of transport responses, only travel by car, by bicycle, and on foot have received ten or more respondents. Median NEP scores indicate bicycle and walk/run categories are more pro-environmental, with the car category being less pro-environmental; these findings also being the case from the modal values (Appendix 4, Table 46). Chi-square results for three of the fifteen NEP questions had positively significant differences between responses based on mode of transport at $p<0.05$, and one of the fifteen NEP questions had a positively significant difference between responses at $p<0.001$. Cramer's V values lie between 0.080 and 0.151 (Appendix 4, Table 47). Together with the Chi-squared results, this indicates a positive weak association that is statistically significant but little variation is explained. These indicate that mode of transport is a weak indicator of pro-environmental attitudes.

Of the activity responses, very few received ten or more respondents. Of those that did, median NEP scores are largely similar across activity group categories. Of these cyclists, walkers and those employed on site are more pro-environmental, whilst the GoApe category is less pro-environmental. Modal NEP scores indicate the same categories are more pro-environmental, and less pro-environmental respectively (Appendix 4, Table 48). Chi-square results for three of the fifteen NEP questions had positively significant differences between responses based on activity at $p<0.05$, and one of the fifteen NEP questions had a positively significant difference between responses at $p<0.001$. Cramer's V values lie between 0.220 and 0.309 (Appendix 4,

Table 49). Together with the Chi-squared results, this indicates a positive weak to moderate association that is statistically significant, but as most values are weak therefore little variation is explained. These indicate that activity is a weak indicator of pro-environmental attitudes.

Median NEP scores indicate employees are more pro-environmental, and visitors are less pro-environmental, with resident's midway between; these findings also being the case from modal values (Appendix 4, Table 50). Chi-square results for one of the fifteen NEP questions had a positively significant difference between responses based on user group type at $p<0.05$, and none of the fifteen NEP questions had a positively significant difference between responses at $p<0.001$. Cramer's V values lie between 0.046 and 0.112 (Appendix 4, Table 51). Together with the Chi-squared results, this indicates a positive weak association that is statistically significant but little variation is explained. These indicate that user group type is a very weak indicator of pro-environmental attitudes. The discussion in this section, and also from sections 4.1.1 and 4.1.2 fulfilling Objective three of Aim one.

4.2 Results of Phase 2 of Study

This section will discuss the results obtained from the content analysis of existing materials from UK mainland AONB sites, followed by results from the pilot studies conducted into the final poster design, its use in a two week longitudinal study and the pilot study of the BRUMS. This section will then discuss the results obtained from the final study intervention and BRUMS.

4.2.1 Results from Pre-Intervention Content Analysis

32 documents were available collectively from the 38 AONBs, with 3 being shared between two neighbouring AONB sites. 26 of these documents were single page posters. The remaining 6 documents were multi-page leaflets, but contained relevant material beneficial to the present study's content analysis and design of an intervention poster. Posters were designed to convey their message(s) in either a positive, neutral or negative way, using the emotional design styles discussed throughout section 2.2.3. This positive/neutral/negative message was communicated through background design, main message content and main message content design. Of the 32 available documents, 15 used a positive message, 13 used a neutral message, 2 used a negative message and 2 used a mixed negative and positive message simultaneously; the components of these four subgroups will be examined here.

Background:

Message Subgroup	Content
Positive	• Single colour bold backgrounds used; a variety of pale and deeper colours used, including brown-green, purple and cream. • Other posters used multiple block colour sections, comprising one main colour section, with a small differently coloured section along base, or top and base areas, including purple with white, and paler blue with darker blue that are eye catching. • Some posters used a mixture of a large photograph with a smaller section of block white, i.e. an image of blue skies with white clouds and images of the site landscape. Some image backgrounds are faded whilst others are vivid. • Mainly portrait layout used, some posters used a landscape layout
Neutral	• Many use a block white background, whilst some others use multiple vibrant colour blocks comprising one main colour section, with a small differently coloured section/site-related photograph along base, or top and base areas, including lilac with purple and white, and pale green with white and images of site landscape. • Some posters use a mixture of a two large photographs, or one large photograph with a block colour section, i.e. flowers with a white colour block, and two site images covering half the poster each. • Some edges to block colour sections are silhouettes of site landscape features, such as plants and hills. • Some use a photograph, including blue skies with white clouds, site landscape with blue skies above. • Mainly portrait layout used, some posters used a landscape layout
Combination of Negative and Positive together	• Brightly coloured cartoon image of grassland with heather covered hills and blues skies. • Vertical columns of warm toned yellow contrasted with black. Black contains some dull red-grey honeycomb patterns, yellow contains pale yellow honeycomb patterns. • Portrait layout used
Negative	• A variety of colours/images used that directly relate to subject material and are vibrant and stand out. • Off-white at top of page turning to grey going down page. White base beneath writing. Large computer generated image used that relates to subject material. • Image of wild bushes/trees on fire, vivid orange and yellow fire mixed with black tree branches. • Portrait layout used

Table 7: Content analysis of AONB existing poster and leaflet intervention material backgrounds

Main Content:

Message Subgroup	Content
Positive	• Minority of titles and main text use neutral language to state the poster's content. Majority of poster titles and main text use positive language. Some celebrate the positive things of the site, i.e. "Festval". Some give readers empowerment/ownership of improving the environment. Some promote largescale community environmental activities. Some ask for readers' help. Some titles promote best practice. Some titles use humorous rhymes, i.e. "Clean for the Queen". • All posters include organisation logos, which vary on where they are located on poster, including top/middle/base, and left/centre/right. Logos vary from being very small in size to large. • Most posters use only images of site together with text, or only cartoons related to site together with text. Minority of posters use images and cartoons with text, or only text. The ratio of text and images used varies between image heavy-text light, and text heavy-image light. The minority use artist-impression maps of site. The minority of posters use no images or maps.
Neutral	• Titles use neutral language. Titles are mainly the name of the site, with some titles also containing an environmentally-related activity, such as "Beach Clean". Other titles are brief and use an immediate subtitle to communicate what the poster is for. Titles are generally clear, with the minority using oblique titles that require reader to look at the rest of the poster to determine what it is for. • Main text uses neutral language to plainly state information, including what issues are happening on site/what wildlife species live on site and their habitat needs/environmental policy information/full details of events that will be held which help the site environment/contact details for more information. • All posters include organisation logos, which vary on where they are located on poster, i.e. top/middle/base, and left/centre/right. Logos vary from being very small in size to large. • Most posters use images of site together with text; the ratio of text and images used varies between image heavy-text light, and text heavy-image light. Some use artist-impression maps of site. The minority of posters use no images or maps.
Combination of Negative and Positive together	• Title uses negative language to put reader on their guard. Mixture of positive and negative language used in text-based poster, such as "Devastating" and "Benefit". Text of poster additionally uses a numerical list of actions users can do, given in neutral and praising language, so that issue can be prevented through individual or local population behavioural change. Information given on what precise behavioural changes are needed, and contact details for where more information can be found. • Neutral and positive images of subject used alongside text. • Negative cartoon images using bright colours, with site logo as only text at base of poster. • Organisation logos are small and located at base of posters.
Negative	• Negatively emotive language used in title to shock viewers and promote feelings of fear, such as "Emergency", "Alarm", "Wildfire". • Further details use neutral and negative language that issue can be prevented through individual or local population behavioural change. Information given on what precise behavioural changes are needed, and contact details for where more information can be found. • Guilt language used at base of poster followed by action language to ask audience for donations. • Short end statements used to imply further research has been conducted into issue. • Organisation logos are small and located at base of posters.

Table 8: Content analysis of AONB existing poster and leaflet intervention material main content

Main Content Design:

Message Subgroup	Content
Positive	• Titles given in larger font than any subtitles and main text. Titles are most frequently placed at top of page, with the minority found in the middle. Title alignments vary between Aligned Left, Aligned Right Centre and Random. Titles use a single font, and use single or multiple colours/patterns. Titles and text are brief and generally in straight lines, with the minority in random orientations. • Main text alignments vary between Aligned Left, Aligned Right Centre and Justify. The minority of posters contain brief statements given in textboxes; textboxes are coloured to match the poster's colour scheme. Textboxes are either randomly shaped, or are shaped in relation to the subject. Majority of posters use mainly free text. Posters vary between using single and multiple colours of text. Text is generally in straight lines, with the minority in random orientations. • Images given in multiple shapes with some related to the subject material. Images are either alongside text or are overlain by text. Some images in polaroid photo frames, others are edged with bright bands of colour that match the overall colour scheme. Cartoons and maps are in squared shapes or shapes befitting individual cartoons. Cartoons and maps are either alongside text, or are overlain by text.
Neutral	• Titles generally found at top of posters, with a small few placing the title in the middle. Title text is larger than any subtitles and main text, and is in a single or multiple colours. Title alignment varies between mainly Aligned Left and Centre, and also Aligned Right and Justify. Titles use single or multiple colours. Titles and text are brief and in straight lines, except for a minority of titles in random orientations. • Text varies between posters and is presented in Aligned Left, Centre and in Justify. Text presented in many ways, i.e. random and non-randomly shaped textboxes where text and background colours contrast. Textbox colours vary between vivid to pale. Majority of posters use mainly free text. Free text and textboxes vary between Aligned Left, Centre and Justify alignments. Posters vary between using brief statements in larger fonts, to multiple paragraphs in very small fonts. • Images/maps are presented in single shapes within each poster, but shapes vary across posters from squares, rectangles, circles and random shapes. Images are either alongside text or are overlain by text. The majority of images have no frames; some posters use thin, single-colour frames but which vary in colour across posters.
Combination of Negative and Positive together	• Brightly coloured negative cartoon images of subject material showing multiple site issues. • Images shaped in context with subject material, and are mixed in with text. • Posters use one or multiple font colours which always contrast with the background colour. • Title font size larger than subtitles; subtitle font size larger than detailed text. Single font used for all text. Slightly larger font size used to highlight key words in text. • Text given in different styles, including both positive and all negative messages given in small free text statements, positive and negative messages given in a longer text block paragraphs, brief statements given in shaped textboxes that are subject-related and a columnar number list of actions users can do. • Title and text alignments vary between Aligned Left and Aligned Right. Titles and text are all in straight lines.
Negative	• Large font size used in titles/brief text of poster. Single or multiple colours used in title and text. Single or multiple fonts used in title and text. Colour(s) of font matches subject material, but are vivid and included so as to contrast with the immediate part of poster it is located in. • Titles found in top centre of posters. Detailed text found in a mixture of layout styles, arranged centrally, either in columns of Aligned Left bullet points with another Centre aligned paragraph, or of brief Centre and Aligned Left statements. Titles and Text are all in straight lines. • Smaller font size used for further text. Some text is in bold to highlight certain statements. • All text in coloured textboxes that relate to subject. Some text boxes are full colour, whilst others are translucent to allow background image to show through.

Table 9: Content analysis of AONB existing poster and leaflet intervention material design

Although backgrounds, content and content design varied between posters, generally, positive posters used light and/or bright colours, humour, and positively framed language and imagery to communicate the information. Neutral posters also used light and/or bright colours, but used neutrally framed language and imagery in plain speech. Mixed negative and positive posters contrasted their information between using positive and negative language and imagery, and how it was presented through both bright and dark colours, portraying both positives and negatives side by side at all times. Negative posters used negative language and imagery which mutually supported the message being conveyed, and also used either dark or light colours depending upon the precise subject (Table 7; 8; 9). From the earlier section 3.3.4 discussion of poster design theory, it can be seen that these existing AONB posts and leaflets in the public domain follow the general principles of layout and content identified in the literature.

As identified by Briggs (2009), DeSilets (2010), Austin (2017) and Rowe (2017), the AONB posters frequently feature bold eye-catching background and foreground colours and large images of positive/negative content that make up the majority of the poster. Topic information is made more appealing by being summarised into small amounts of text featuring attention grabbing positive/negative language, which together with the positive/negative tone further set by use of specific colours and imagery incorporate a variety of emotional appeals, as discussed in sections 2.2.3 to 2.2.3.5. This overall pattern in design requiring only a small amount of time in terms of commitment from viewers to read all the information being a key factor as identified by Rowe (2017). Even though general design principles are followed in the design of these posters, they are all distinctly individual and tailored to the subject they are discussing, supporting the argument by Briggs (2009) that the poster

designer must ultimately use their creative instincts of the topic for the benefit of the message they are conveying.

4.2.2 Results from Intervention Poster Qualitative Questionnaire Pilot and Full Final Copy Questionnaire Pilot Studies

Feedback from the pilot study identified that the poster's efficacy will be improved by amendment of the following content:

1) Images of live and dead hedgehogs
2) Images of dog waste (not in a bag)
3) Image of Commonwealth War Cemeteries are man-made, the poster should only use images of Cannock Chase AONB as a natural environment
4) Use of a clear dividing line between the negative and positive halves of the poster
5) Use of a division in the poster's background between the positive and negative halves; this is most effectively achieved by use of two plain colours for the background, i.e. grey and green, as a photo image as the background is too confusing to look at
6) Use of colour photos is more effective than black and white photos
7) Use of a shorter title that is not broken up in to two different colours across the two poster halves, or broken across different colour backgrounds

8) Use of easy to read labels, i.e. make labels larger and standout from the background they cover

9) Use of a scissor-effect division line, along with use of slogans “cut & curb” and “tear & share” on either side of division line

10) To avoid overloading the poster with images

11) Overall, the most popular poster design incorporated the above features into a portrait oriented design containing six large images with labels, over a grey background for the negative half and a green back ground for the positive half of the poster. A web link for the official Cannock Chase AONB website is also included for official information about the site.

The feedback points from the qualitative questionnaire pilot were incorporated into the final copy intervention and tested via a full final copy questionnaire pilot study.

	New Ecological Paradigm (NEP) Question	Base line User Median (N= 701)	Base line User Mode (N = 701)	Week 1 Pilot Median (N = 22)	Week 1 Pilot Mode (N = 22)	Week 2 Pilot Median (N = 14)	Week 2 Pilot Mode (N = 14)
1	We are approaching the limit of the number of people the earth can support	4.00	3	4.00	4	3.00	3
2	Humans have the right to modify the natural environment to suit their needs	3.00	2	3.50	4	3.00	4
3	When humans interfere with nature, it often produces disastrous consequences	4.00	4	4.00	5	4.00	4
4	Human ingenuity will insure that we do NOT make the earth unliveable	3.00	3	3.00	3	3.00	3
5	Humans are severely abusing the environment	4.00	4	4.00	4	4.00	4
6	The earth has plenty of natural resources if we just learn how to develop them	4.00	4	4.00	5	4.00	4
7	Plants and animals have as much right as humans to exist	5.00	5	5.00	5	5.00	5
8	The balance of nature is strong enough to cope with the impacts of modern industrial nations	2.00	3	2.00	2	2.00	2
9	Despite our special abilities, humans are still subject to the laws of nature	4.00	5	5.00	5	5.00	5
10	The so-called “ecological crisis” facing humankind has been greatly exaggerated	3.00	3	2.00	2	2.00	2
11	The earth is like a spaceship with very limited room & resources	4.00	3	3.00	4	3.00	3
12	Humans were meant to rule over the rest of nature	2.00	1	2.00	1	2.00	2
13	The balance of nature is very delicate and easily upset	4.00	4	4.50	5	4.00	5
14	Humans will eventually learn enough about how nature works to be able to control it	3.00	3	3.00	3	3.00	3
15	If things continue on their present course, we will soon experience a major ecological catastrophe	3.00	3	4.00	4	3.00	3

Table 10: Median and Mode values across baseline, pilot study Week 1 and Week 2 NEP scores

	New Ecological Paradigm (NEP) Question	Value	df	Asymptotic Significance (2-sided)	Phi-Coefficient Value	Cramer's V Value
1	We are approaching the limit of the number of people the earth can support	8.311	8	0.404	0.108	0.076
2	Humans have the right to modify the natural environment to suit their needs	7.087	8	0.527	0.100	0.071
3	When humans interfere with nature, it often produces disastrous consequences	5.901	8	0.658	0.091	0.064
4	Human ingenuity will insure that we do NOT make the earth unliveable	7.122	8	0.524	0.100	0.071
5	Humans are severely abusing the environment	10.560	8	0.228	0.122	0.086
6	The earth has plenty of natural resources if we just learn how to develop them	6.579	8	0.583	0.097	0.068
7	Plants and animals have as much right as humans to exist	11.273	8	0.187	0.126	0.089
8	The balance of nature is strong enough to cope with the impacts of modern industrial nations	18.202	8	0.020	0.160	0.113
9	Despite our special abilities, humans are still subject to the laws of nature	11.008	8	0.201	0.124	0.088
10	The so-called "ecological crisis" facing humankind has been greatly exaggerated	26.524	8	0.001	0.193	0.136
11	The earth is like a spaceship with very limited room & resources	4.456	8	0.814	0.079	0.056
12	Humans were meant to rule over the rest of nature	4.059	8	0.852	0.076	0.054
13	The balance of nature is very delicate and easily upset	6.159	8	0.629	0.093	0.066
14	Humans will eventually learn enough about how nature works to be able to control it	4.643	8	0.795	0.081	0.057
15	If things continue on their present course, we will soon experience a major ecological catastrophe	5.737	8	0.677	0.090	0.064

Table 11: Chi-squared, Phi Coefficient and Cramer's V Values across baseline, pilot study Week 1 and Week 2 NEP scores

Following delivery of the full final copy questionnaire pilot to a convenience sample group, and as seen in Tables 10 and 11, Chi-Squared tests found that there were only two NEP questions (8 and 10) that had significant differences in responses across the baseline, and weeks 1 and 2 of the pilot study at $p<0.05$, and no significant differences at $p<0.001$. As there are more than two response categories

for this group, Cramer's V values lie between 0.054 and 0.136. Together with the Chi-squared results, these indicate a positive weak association that is statistically significant but little variation is explained. As the pilot study was conducted to solely determine if the final copy intervention and questionnaire were understandable, the sample group was not chosen based on individuals' status as users or non-users of Cannock Chase AONB. Tables 9 and 11 show that the intervention and questionnaire were understandable by individuals.

4.2.3 Results from Intervention Poster Questionnaire: Pilot Study Mood Scale

Similarly to section 4.2.2, during the intervention's qualitative questionnaire pilot study, the BRUMS mood scale was examined on whether it was understandable by participants and suitable for the present study. It can be seen that a range of response values have been felt by participants, allowing for median and modal values to be obtained which have identified that participants mainly felt these emotions to a small degree, if at all.

BRUMS Mood Adjective	Median (N=18)	Mode (N=18)
Panicky	0.00	0
Lively	0.00	0
Confused	0.00	0
Worn out	0.00	0
Depressed	1.00	1
Downhearted	1.50	1
Annoyed	1.50	1
Exhausted	0.00	0
Mixed-up	0.00	0
Sleepy	0.00	0
Bitter	0.00	0
Unhappy	2.00	2
Anxious	1.00	1
Worried	1.00	1
Energetic	0.00	0
Miserable	1.00	0
Muddled	0.00	0
Nervous	0.00	0
Angry	1.00	0
Active	1.00	1
Tired	0.00	0
Bad tempered	0.00	0
Alert	0.00	0
Uncertain	0.00	0
Overloaded	0.00	0
Disgust	2.00	3
Joy	0.00	0
Guilt	0.00	0
Satisfied	0.00	0
Shame	0.00	0
Indifferent	0.00	0
Fear	0.00	0
Resentful	0.00	0
Proud	0.00	0

Table 12: Median and Modal values for qualitative questionnaire pilot study of intervention

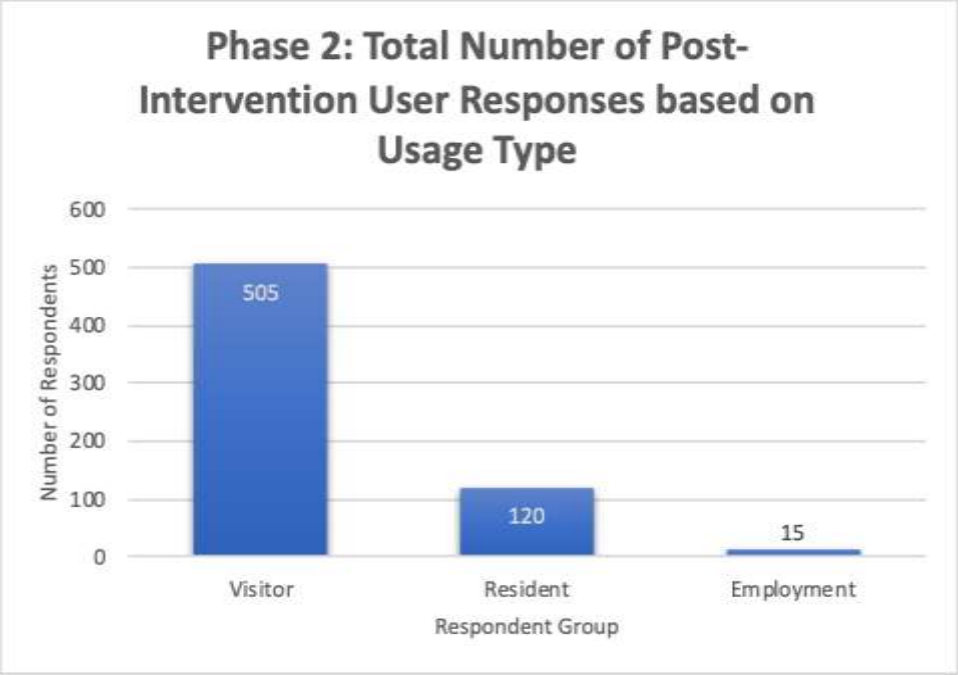
Again as with section 4.2.2, following the intervention's qualitative questionnaire pilot study, a full final copy questionnaire pilot was conducted over two weeks. As shown in Table 13, it can again be seen that a range of response values have been felt by participants, allowing for median and modal values to be obtained which have identified that participants largely felt these emotions to a small degree, if at all. Similarly to the NEP pilot study results, Table 13 indicates that the BRUMS scale were understandable by individuals. As the pilot study was conducted to solely determine if the final copy intervention and questionnaire were understandable, the sample group was not chosen based on individuals' status as users or non-users of Cannock Chase AONB.

BRUMS Mood Adjective	Week 1 Pilot Median (N = 22)	Week 1 Pilot Mode (N = 22)	Week 2 Pilot Median (N = 14)	Week 2 Pilot Mode (N = 14)
Panicky	0.00	0	0.00	0
Lively	1.00	2	1.00	0
Confused	0.00	0	0.00	0
Worn out	1.00	0	0.50	0
Depressed	0.00	0	0.00	0
Down hearted	0.00	0	0.00	0
Annoyed	0.00	0	0.00	0
Exhausted	0.50	0	0.00	0
Mixed-up	0.00	0	0.00	0
Sleepy	1.00	0	1.00	0
Bitter	0.00	0	0.00	0
Unhappy	0.00	0	0.00	0
Anxious	0.00	0	0.00	0
Worried	0.00	0	0.00	0
Energetic	2.00	2	1.00	1
Miserable	0.00	0	0.00	0
Muddled	0.00	0	0.00	0
Nervous	0.00	0	0.00	0
Angry	0.00	0	0.00	0
Active	1.00	0	1.00	1
Tired	1.00	1	1.00	1
Bad tempered	0.00	0	0.00	0
Alert	2.00	3	1.00	1
Uncertain	0.00	0	0.00	0
Overloaded	1.00	0	0.00	0
Disgust	0.00	0	0.00	0
Joy	1.50	2	1.00	1
Guilt	0.00	0	0.00	0
Satisfied	2.00	2	1.00	1
Shame	0.00	0	0.00	0
Indifferent	0.00	0	0.50	0
Fear	0.00	0	0.00	0
Resentful	0.00	0	0.00	0
Proud	1.00	1	1.00	0

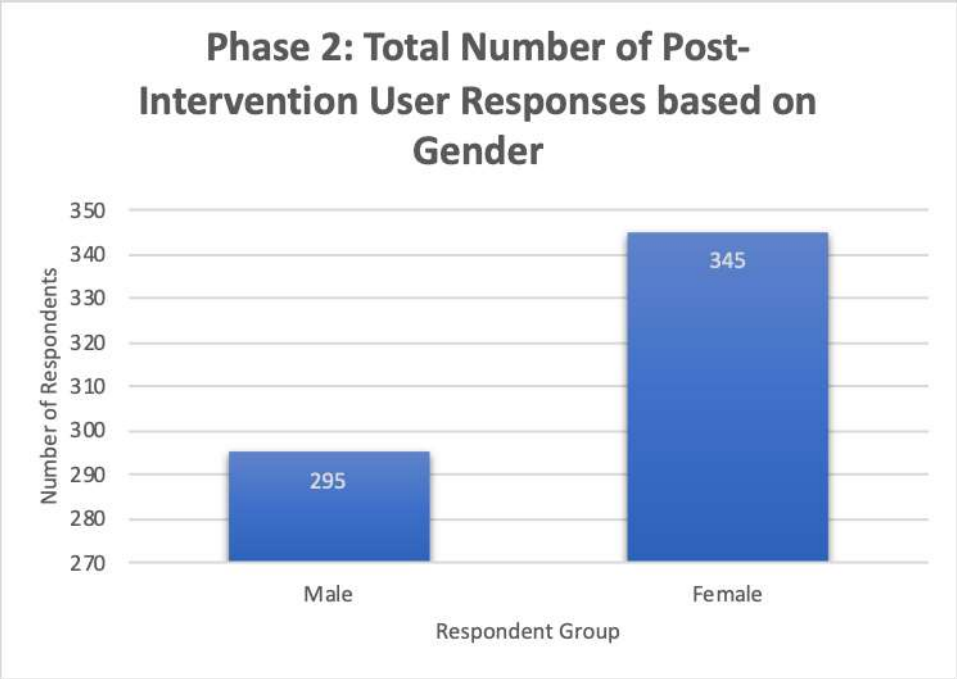
Table 13: Median and Modal values for user pilot study Week 1 and Week 2 BRUMS scores of intervention

Of all the emotions, disgust was particularly felt during the qualitiative pilot (Table 12), despite not being felt in the final pilot study (Table 13). Participant qualitative feedback identified this was largely due to the images of dog fouling used in many of the possible intervention posters shown during the pilot. This finding is supported by the study by Shimp and Stuart (2004), which found animal waste images provoked a disgust response. Other emotional appeals used in the poster were also felt by participants, such as Joy and Pride (Table 13) received high scores, which participant qualitative feedback identified was through use of positive images of the site that were clearly divided from the negative images.

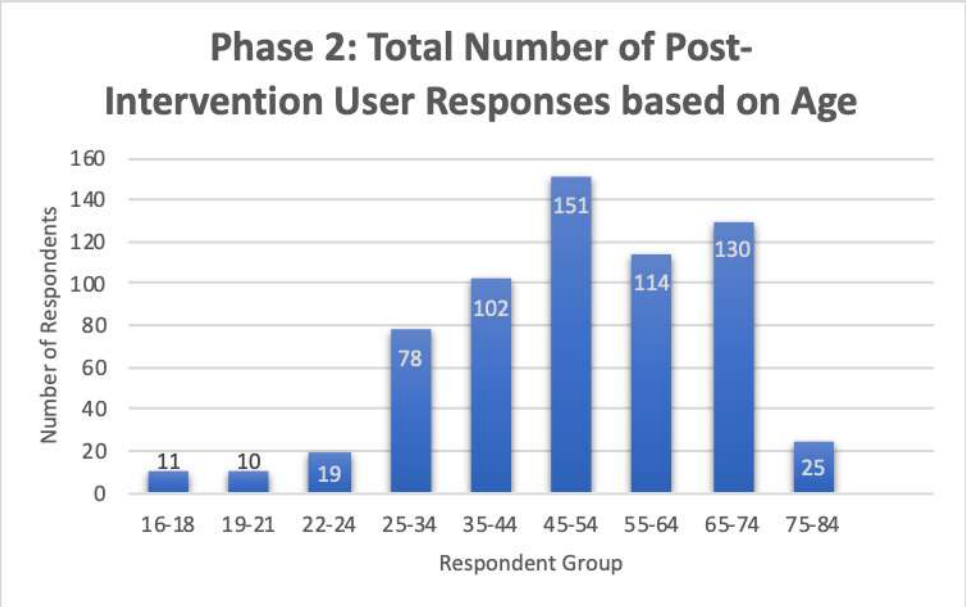
4.2.4 Results of Intervention Poster Questionnaire



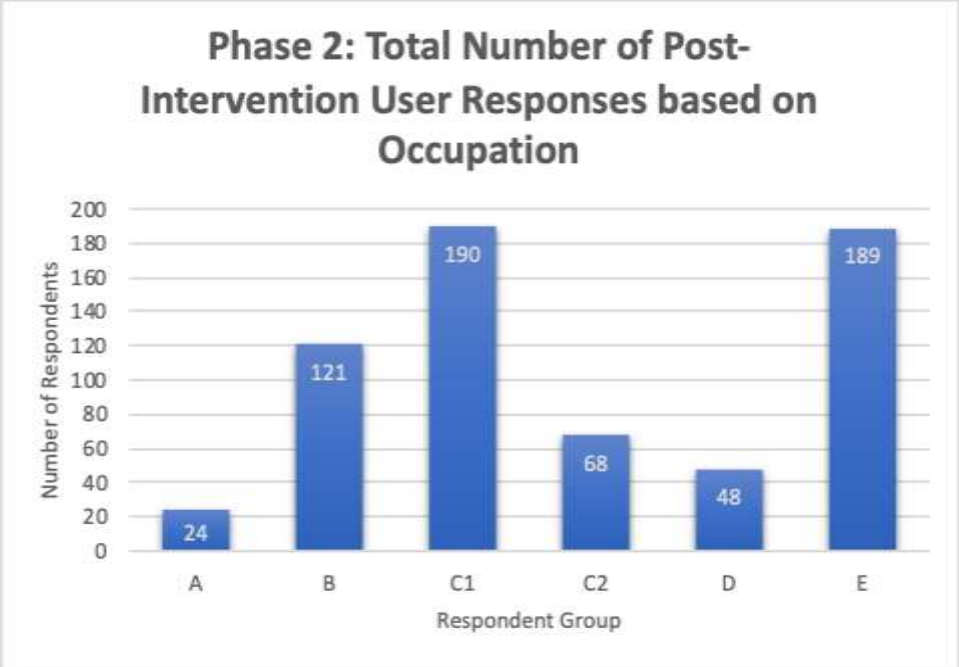
Graph 18: Phase 2 total number of Post-Intervention User responses based on Usage Type



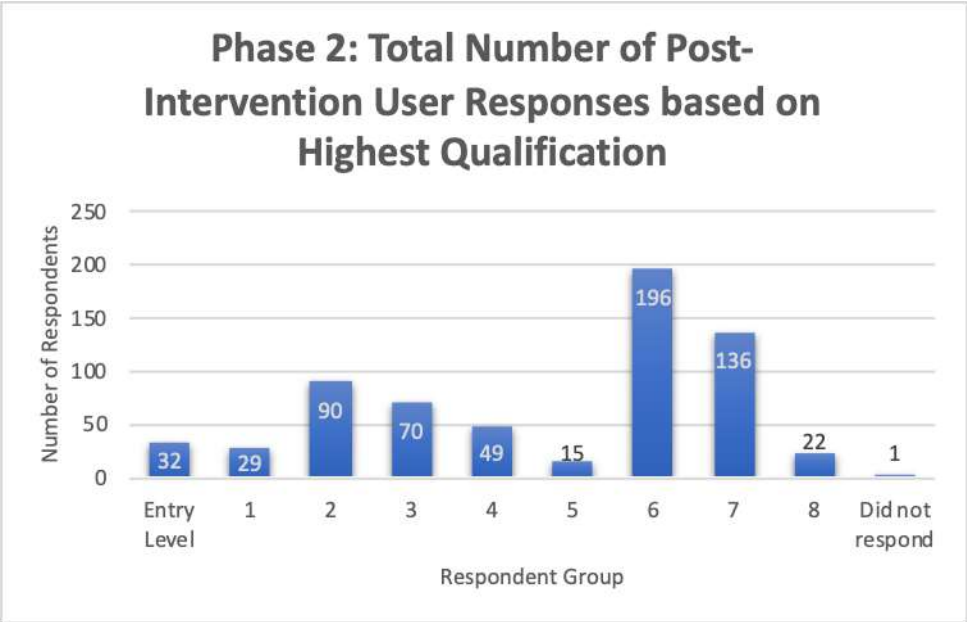
Graph 19: Phase 2 total number of Post-Intervention User responses based on Gender



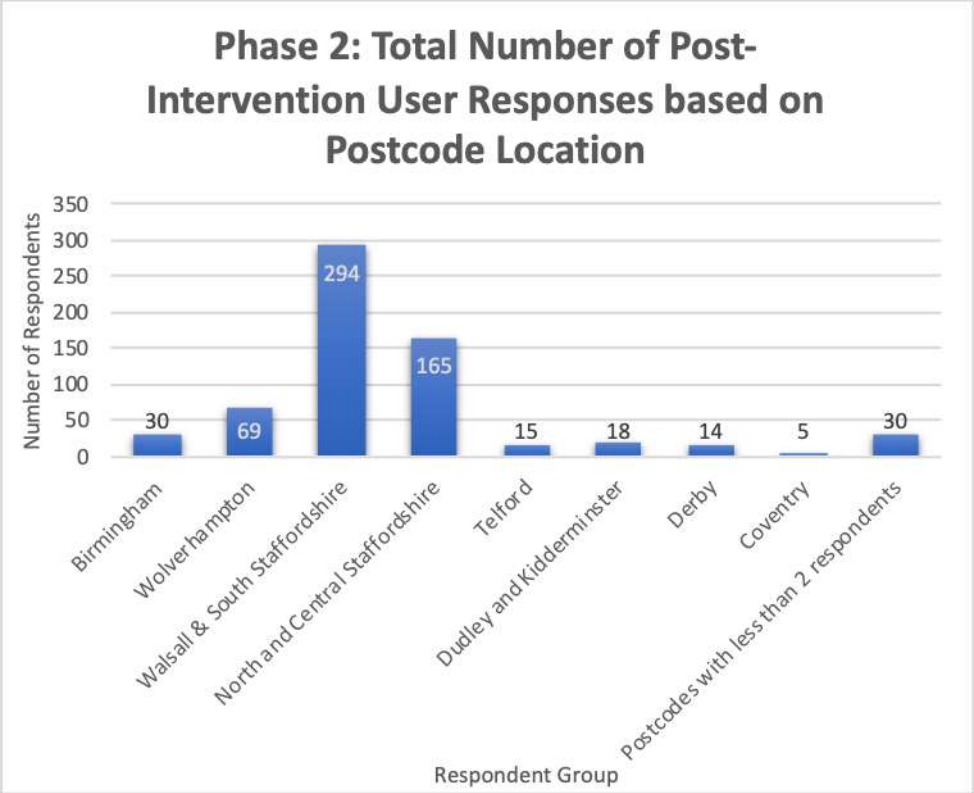
Graph 20: Phase 2 total number of Post-Intervention User responses based on Age



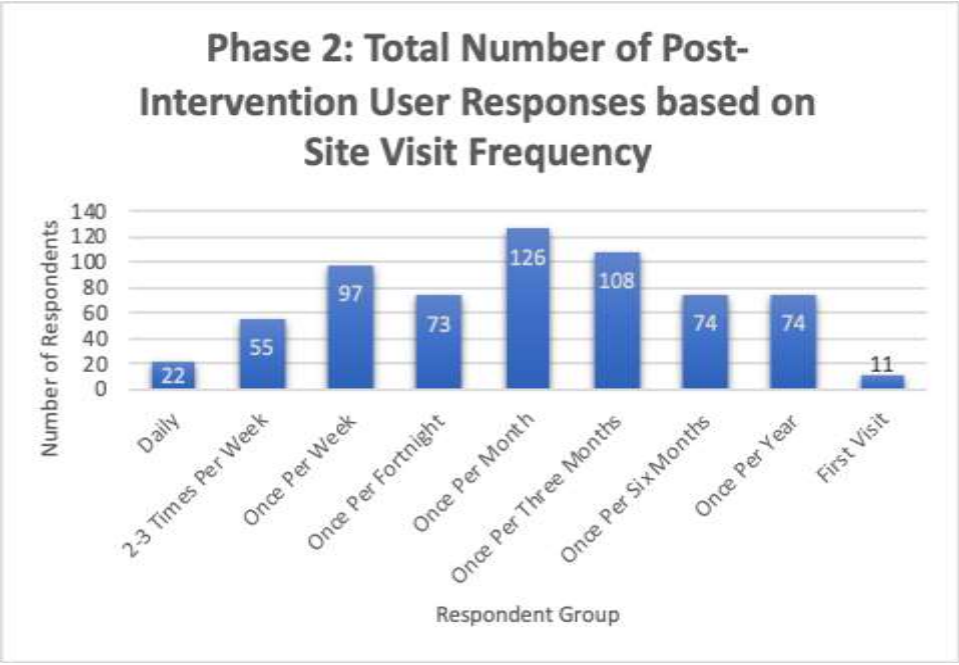
Graph 21: Phase 2 total number of Post-Intervention User responses based on Occupation



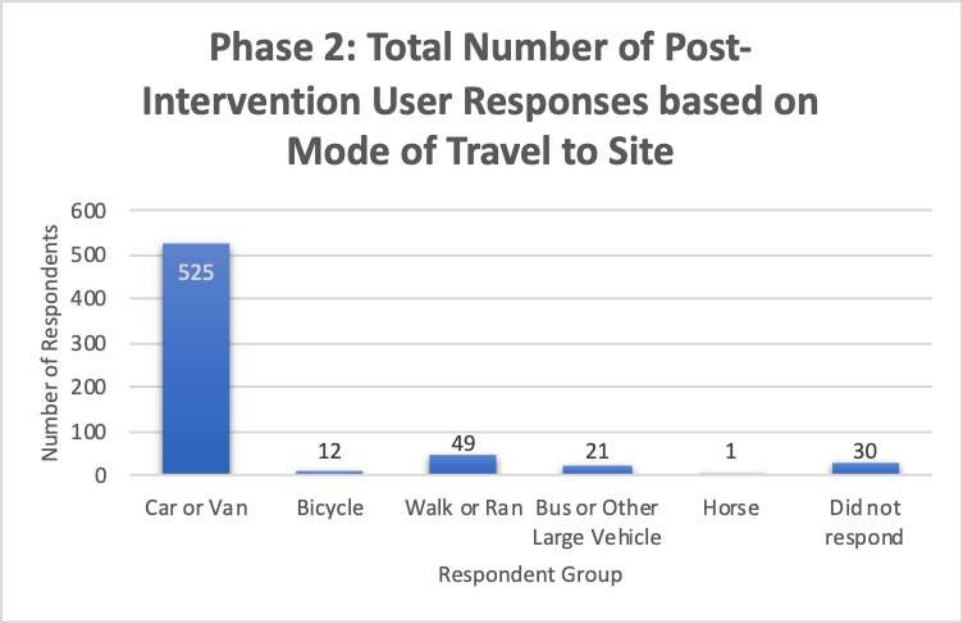
Graph 22: Phase 2 total number of Post-Intervention User responses based on Highest Qualification



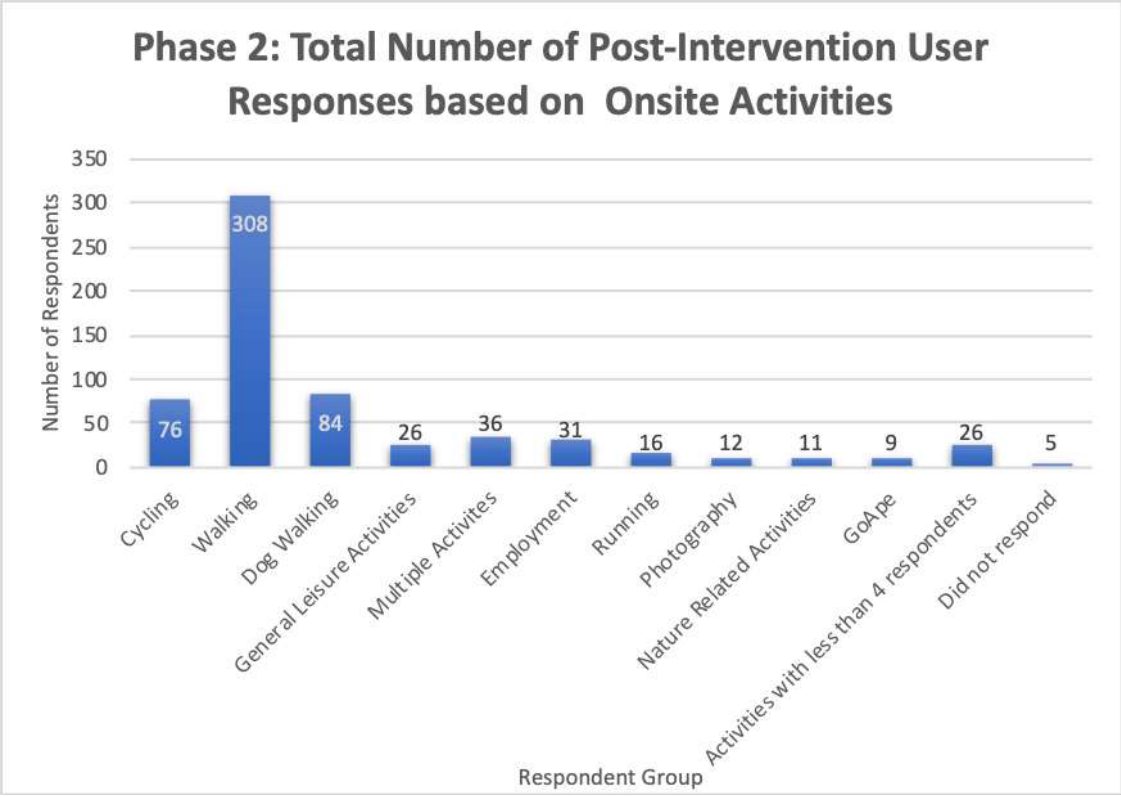
Graph 23: Phase 2 total number of Post-Intervention User responses based on Postcode Location



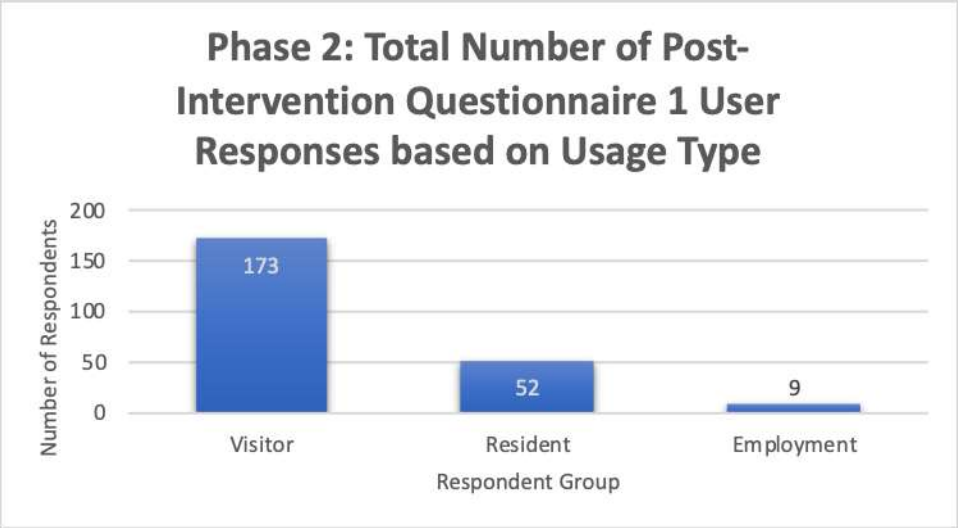
Graph 24: Phase 2 total number of Post-Intervention User responses based on Site Visit Frequency



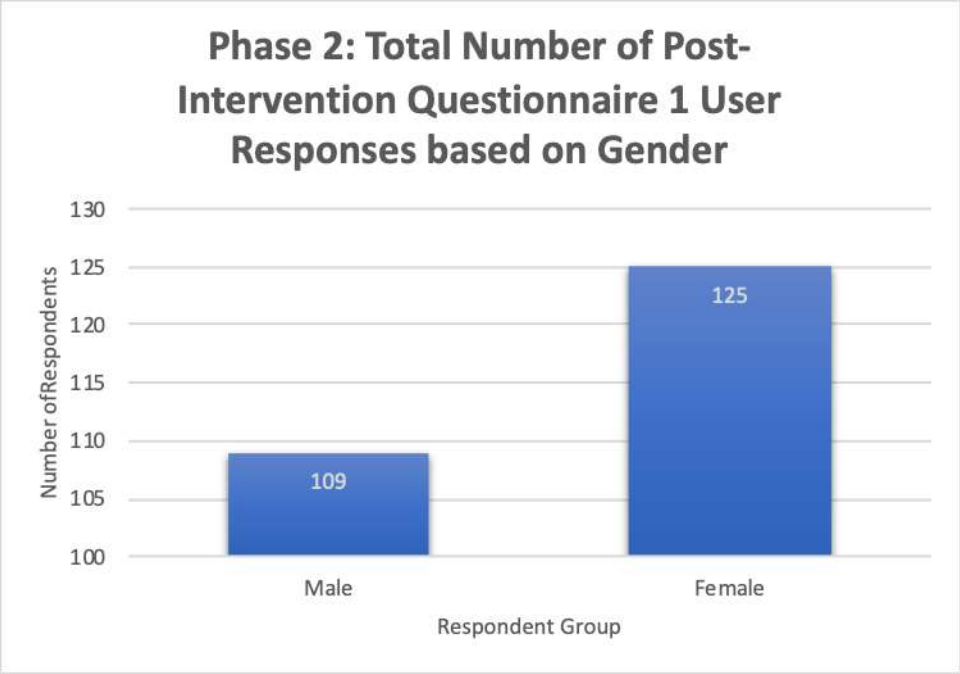
Graph 25: Phase 2 total number of Post-Intervention User responses based on Mode of Travel to Site



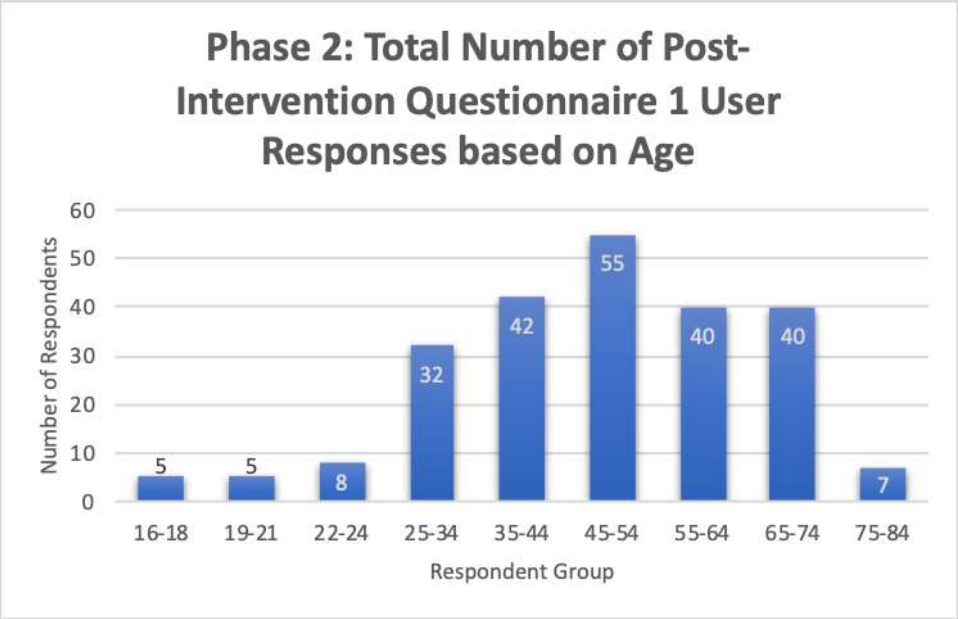
Graph 26: Phase 2 total number of Post-Intervention User responses based on Onsite Activities



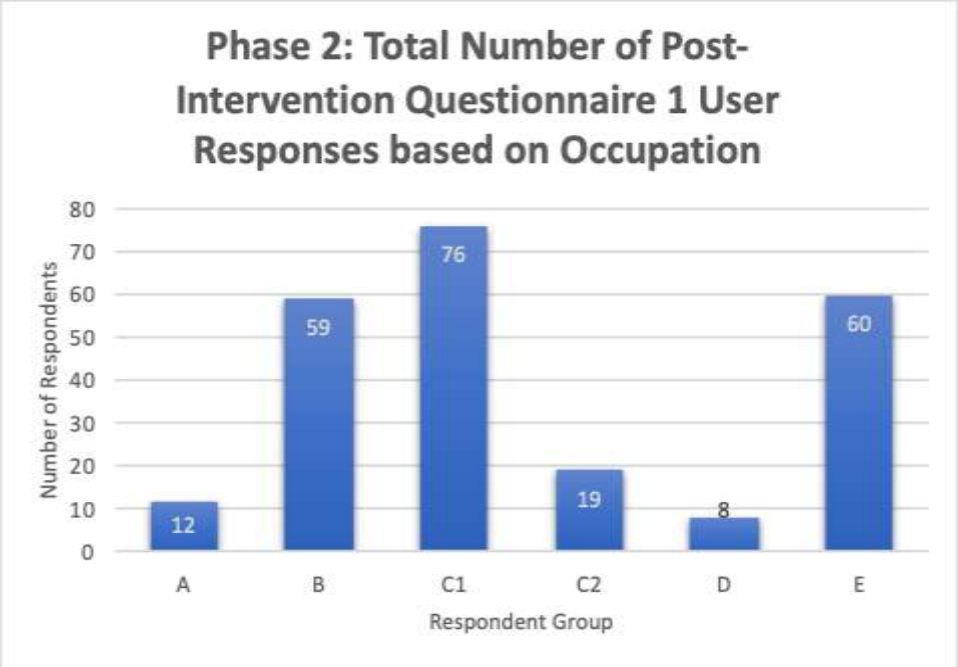
Graph 27: Phase 2 total number of Post-Intervention Questionnaire 1 User responses based on Usage Type



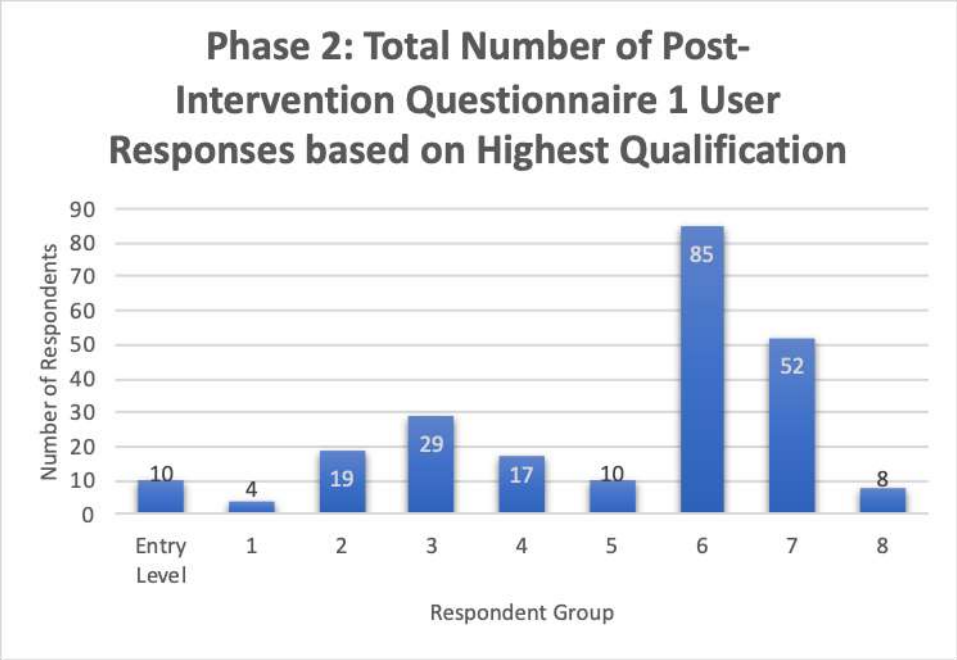
Graph 28: Phase 2 total number of Post-Intervention Questionnaire 1 User responses based on Gender



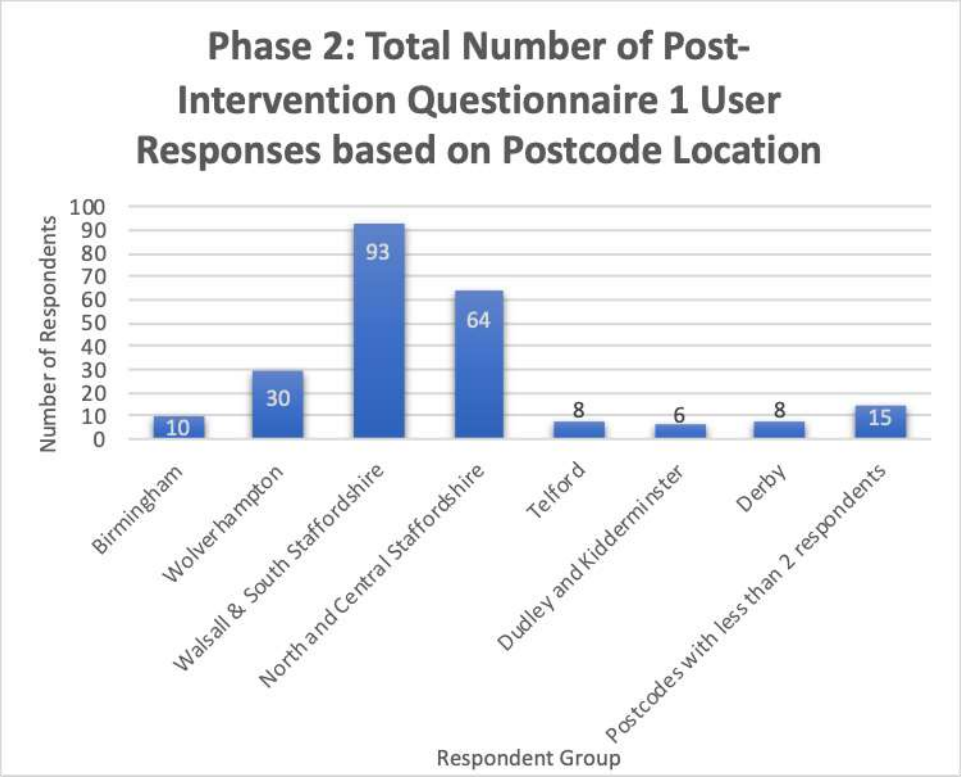
Graph 29: Phase 2 total number of Post-Intervention Questionnaire 1 User responses based on Age



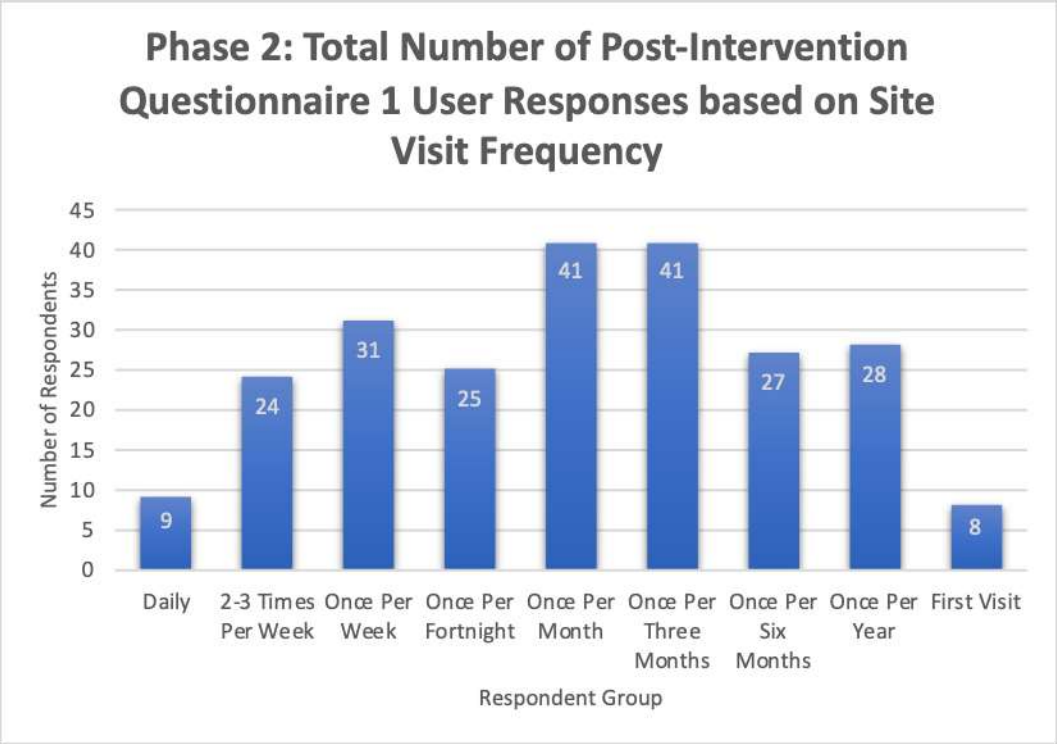
Graph 30: Phase 2 total number of Post-Intervention Questionnaire 1 User responses based on Occupation



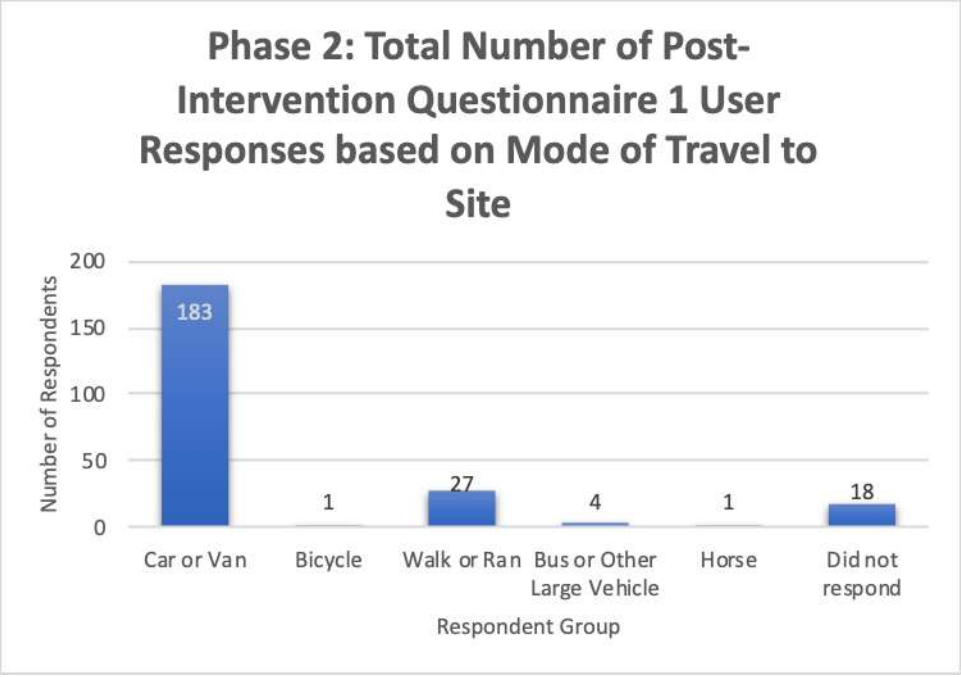
Graph 31: Phase 2 total number of Post-Intervention Questionnaire 1 User responses based on Highest Qualification



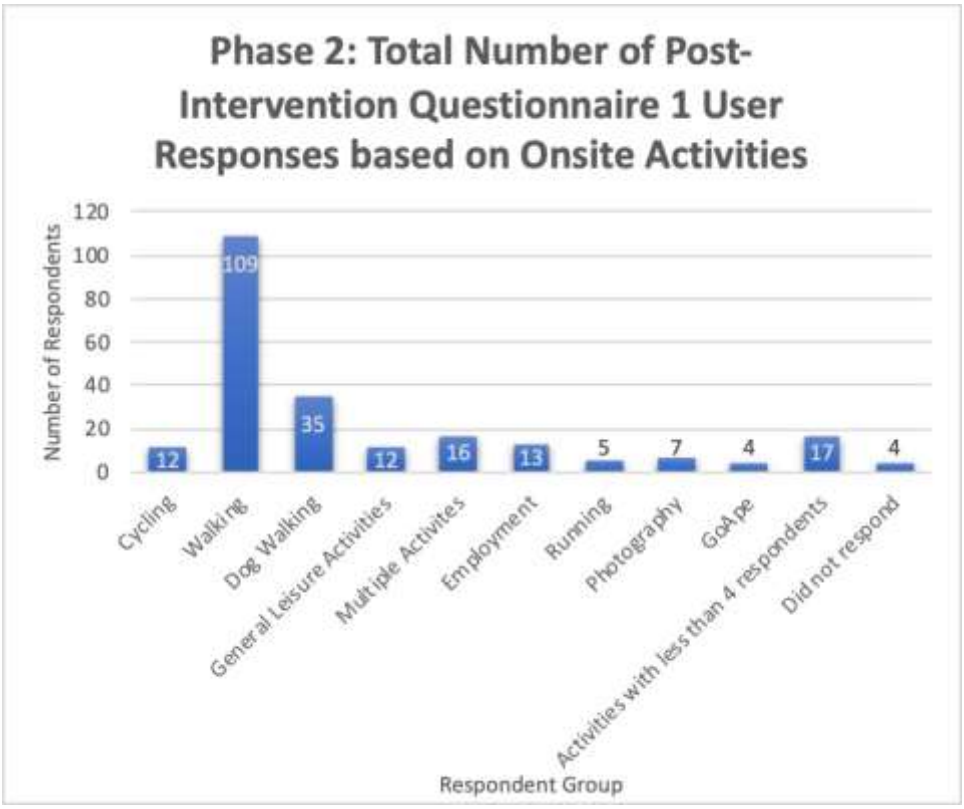
Graph 32: Phase 2 total number of Post-Intervention Questionnaire 1 User responses based on Postcode Location



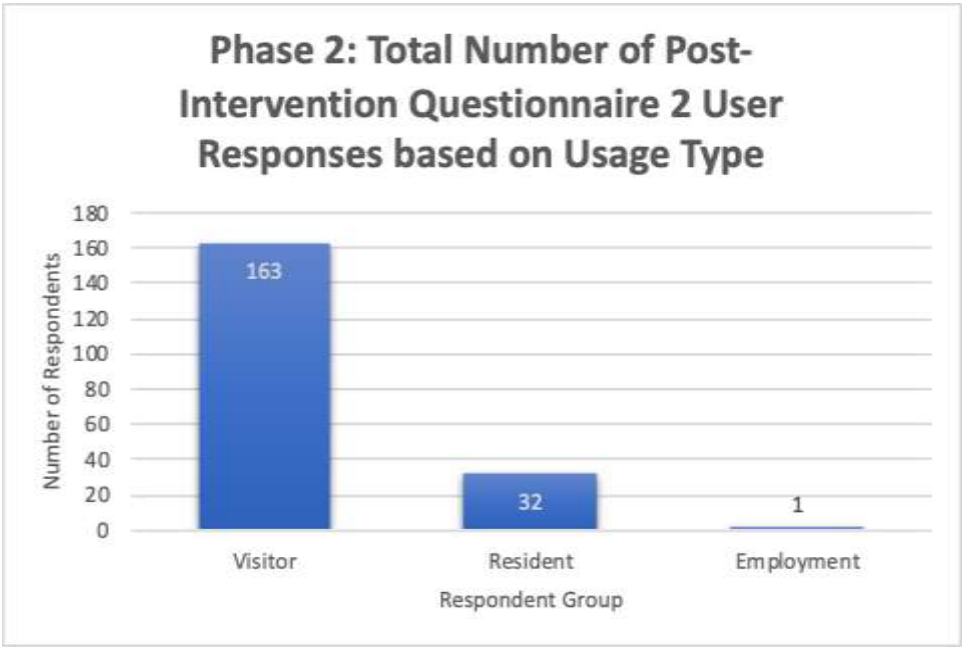
Graph 33: Phase 2 total number of Post-Intervention Questionnaire 1 User responses based on Site Visit Frequency



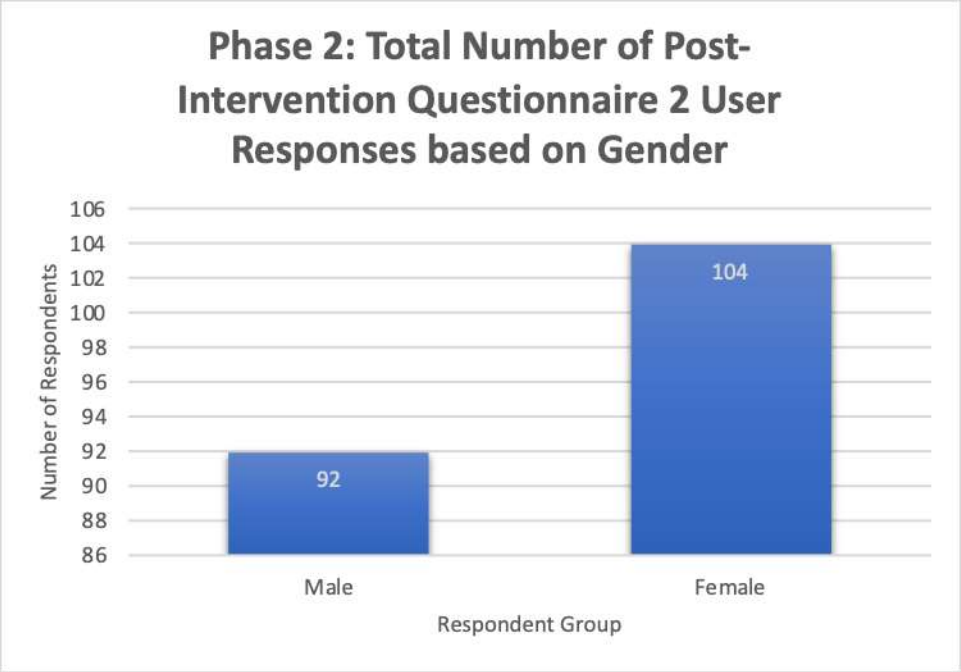
Graph 34: Phase 2 total number of Post-Intervention Questionnaire 1 User responses based on Mode of Travel to Site



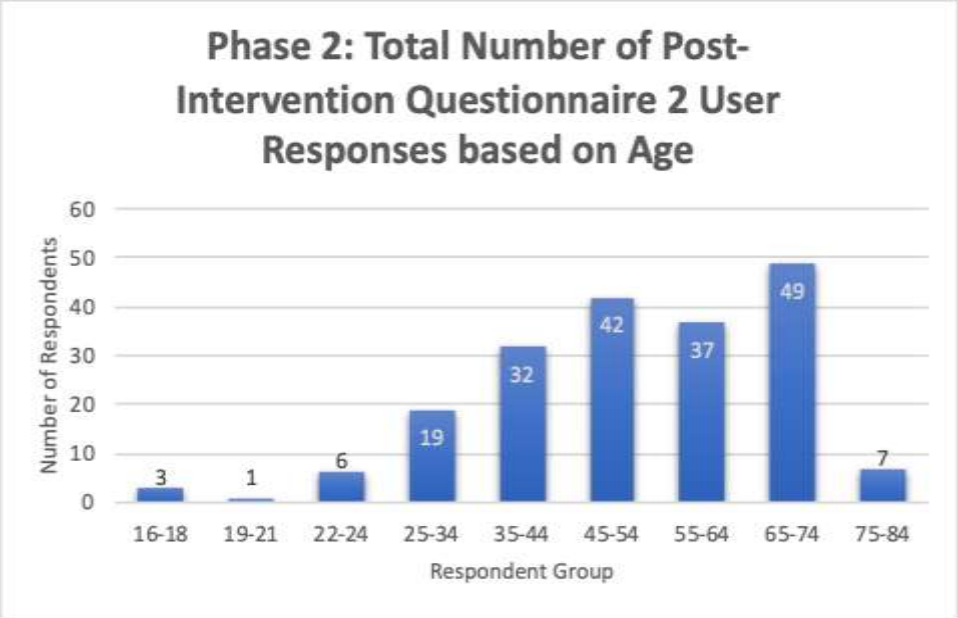
Graph 35: Phase 2 total number of Post-Intervention Questionnaire 1 User responses based on Onsite Activities



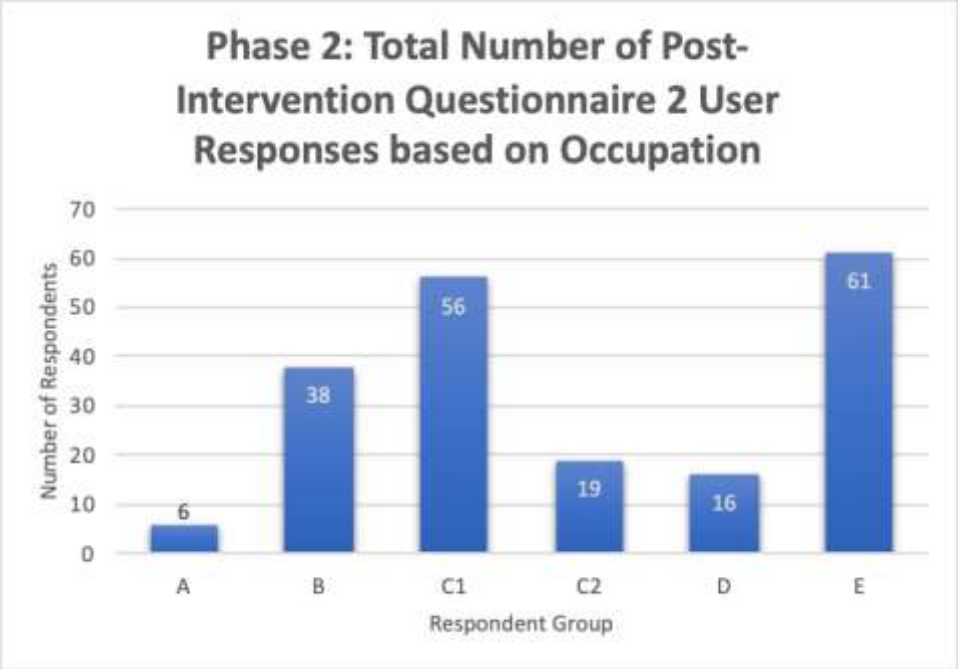
Graph 36: Phase 2 total number of Post-Intervention Questionnaire 2 User responses based on Usage Type



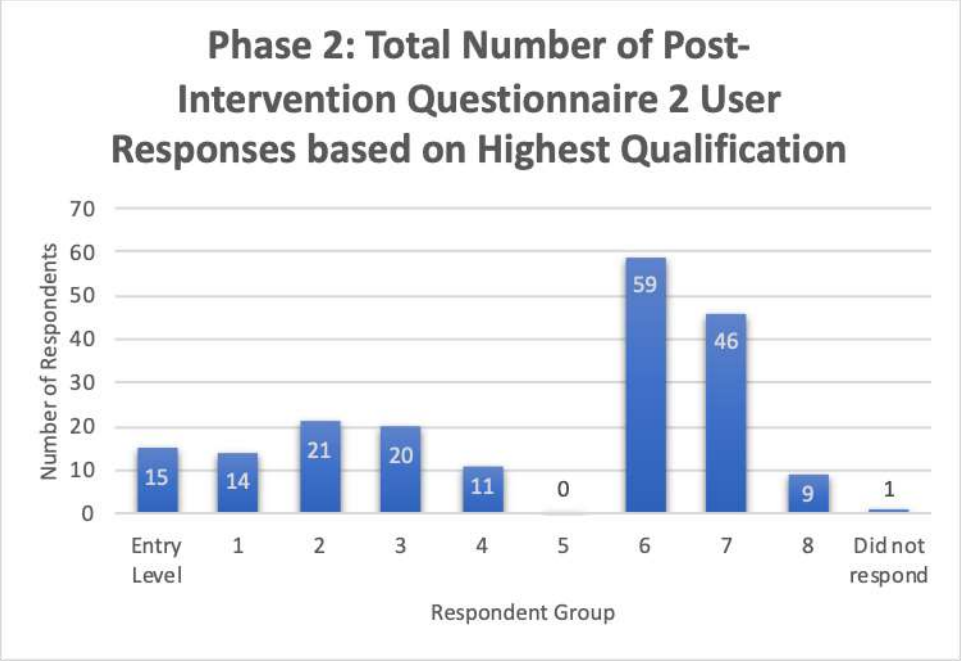
Graph 37: Phase 2 total number of Post-Intervention Questionnaire 2 User responses based on Gender



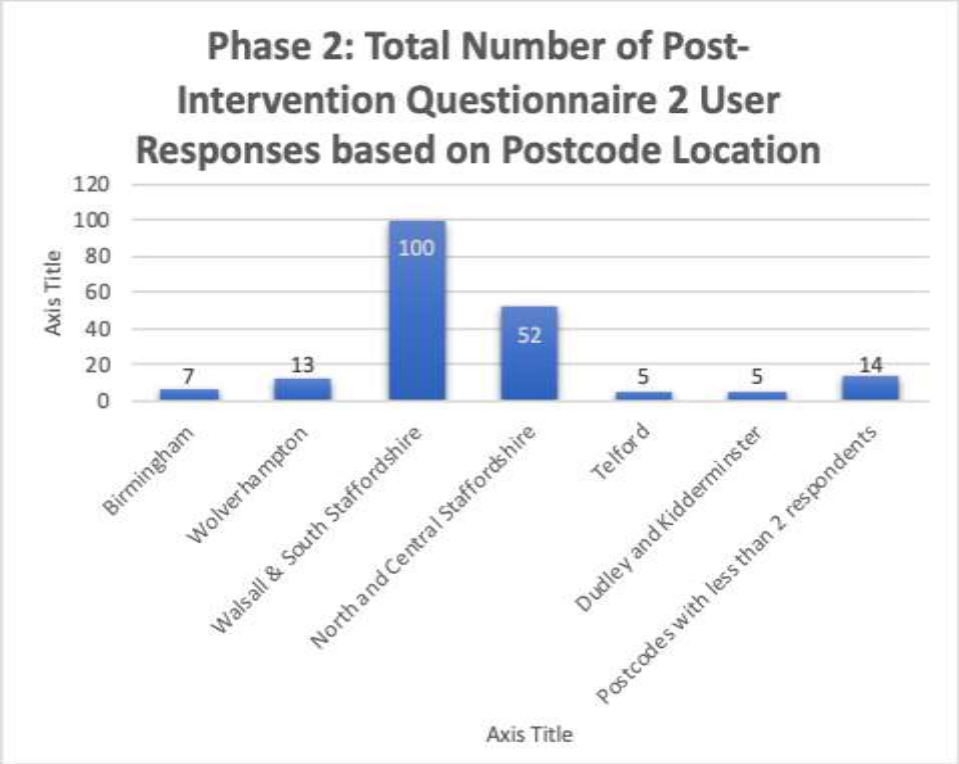
Graph 38: Phase 2 total number of Post-Intervention Questionnaire 2 User responses based on Age



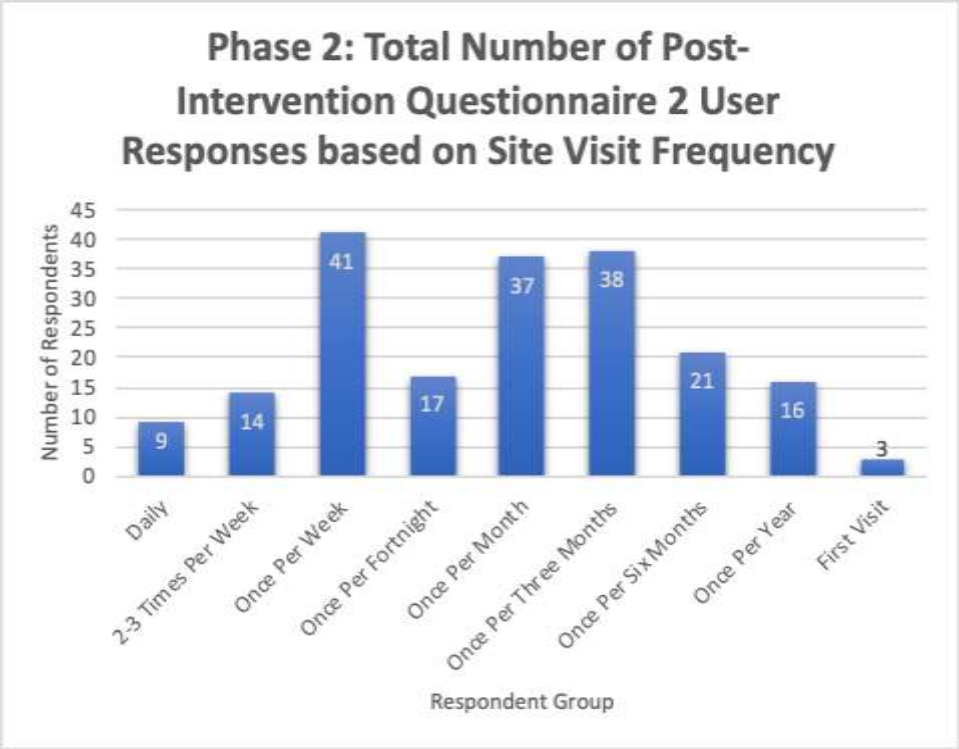
Graph 39: Phase 2 total number of Post-Intervention Questionnaire 2 User responses based on Occupation



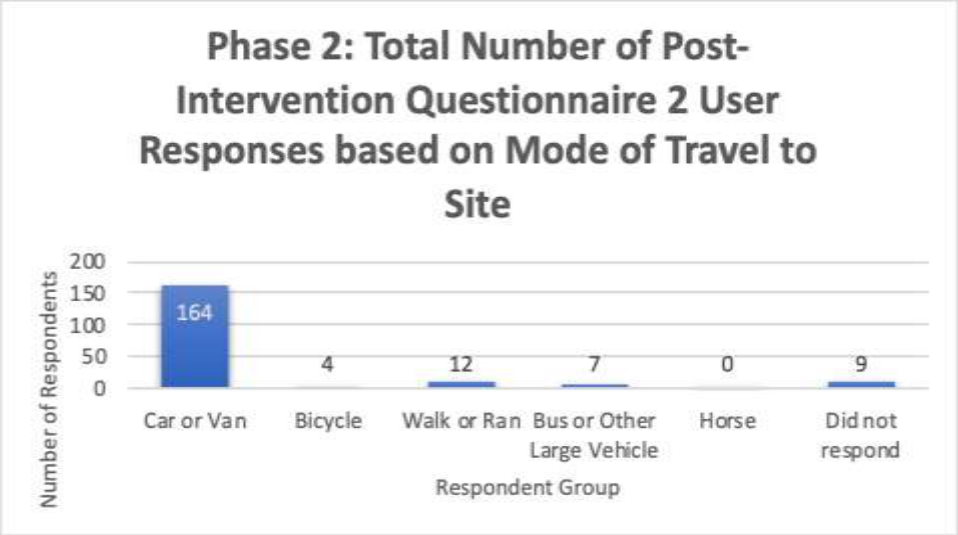
Graph 40: Phase 2 total number of Post-Intervention Questionnaire 2 User responses based on Highest Qualification



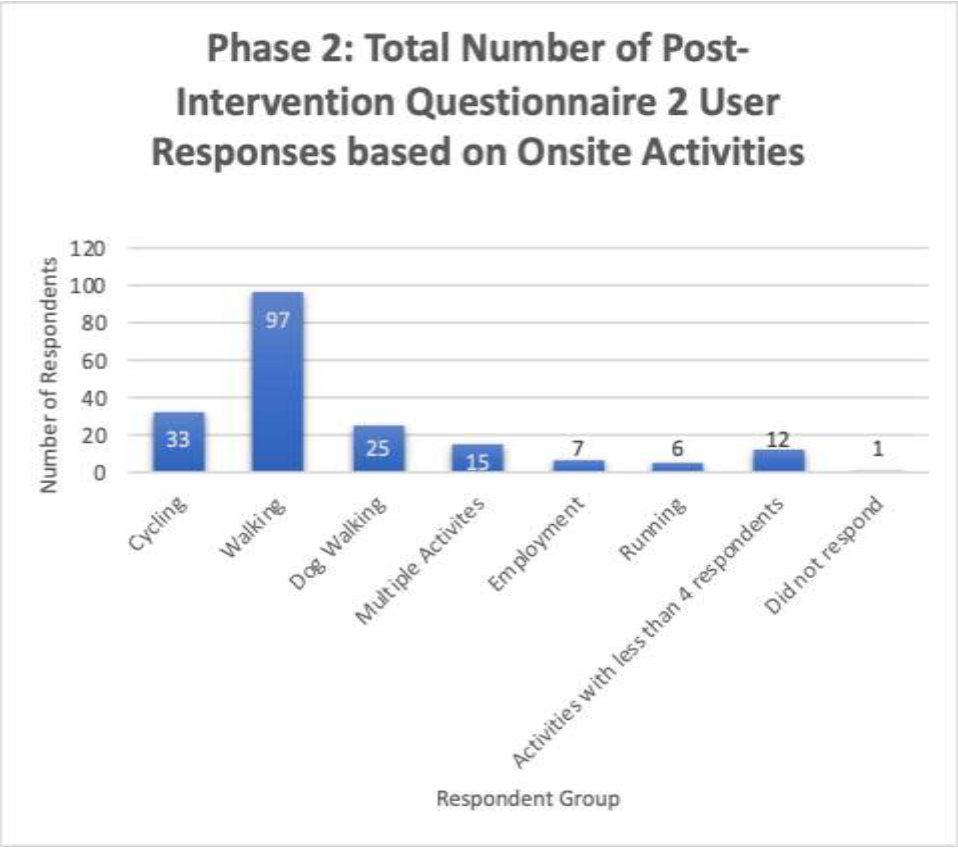
Graph 41: Phase 2 total number of Post-Intervention Questionnaire 2 User responses based on Postcode Location



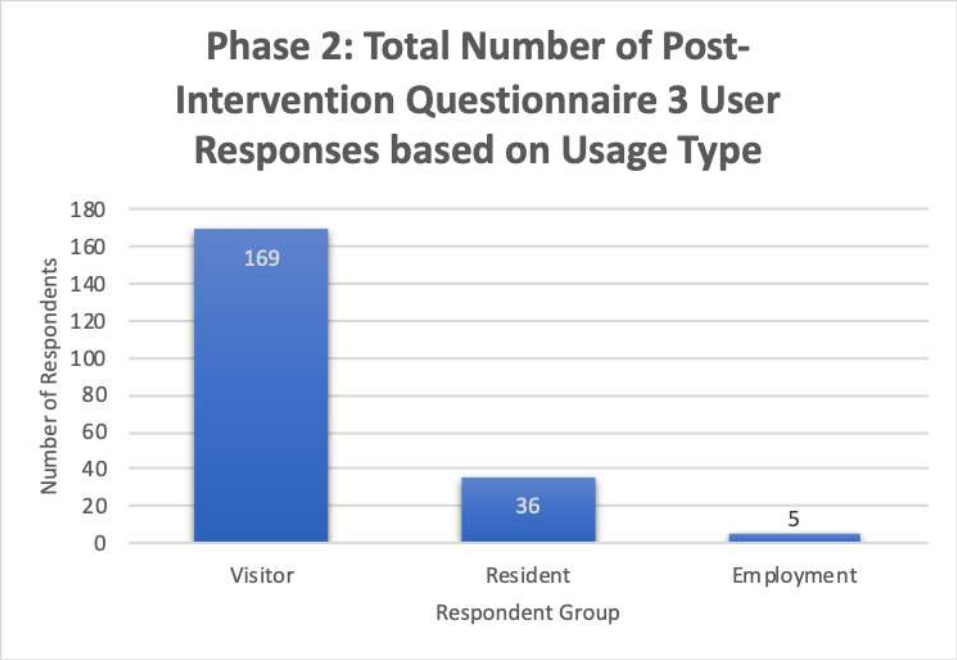
Graph 42: Phase 2 total number of Post-Intervention Questionnaire 2 User responses based on Site Visit Frequency



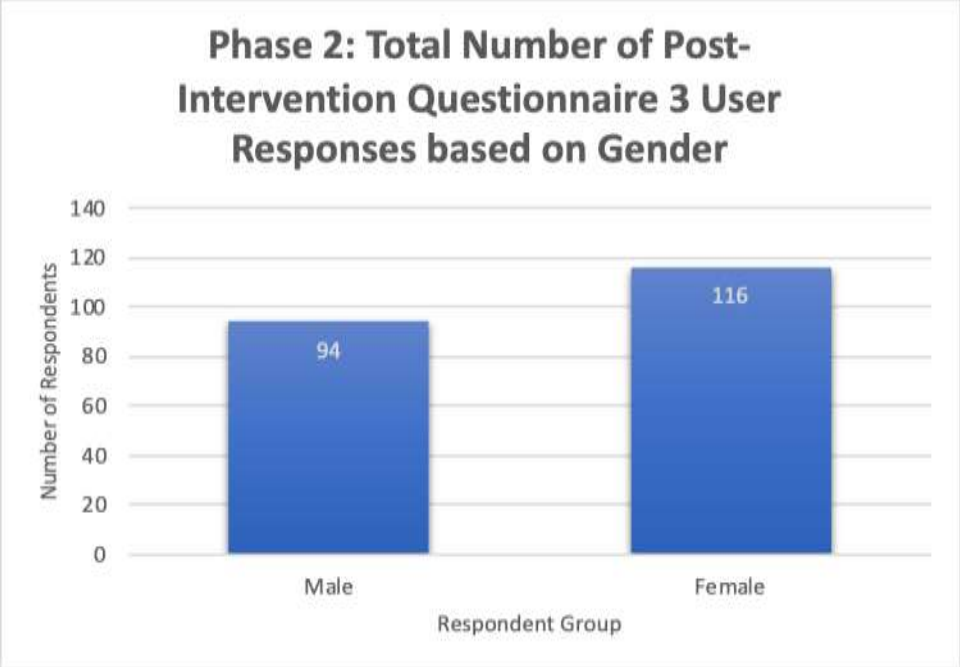
Graph 43: Phase 2 total number of Post-Intervention Questionnaire 2 User responses based on Mode of Travel to Site



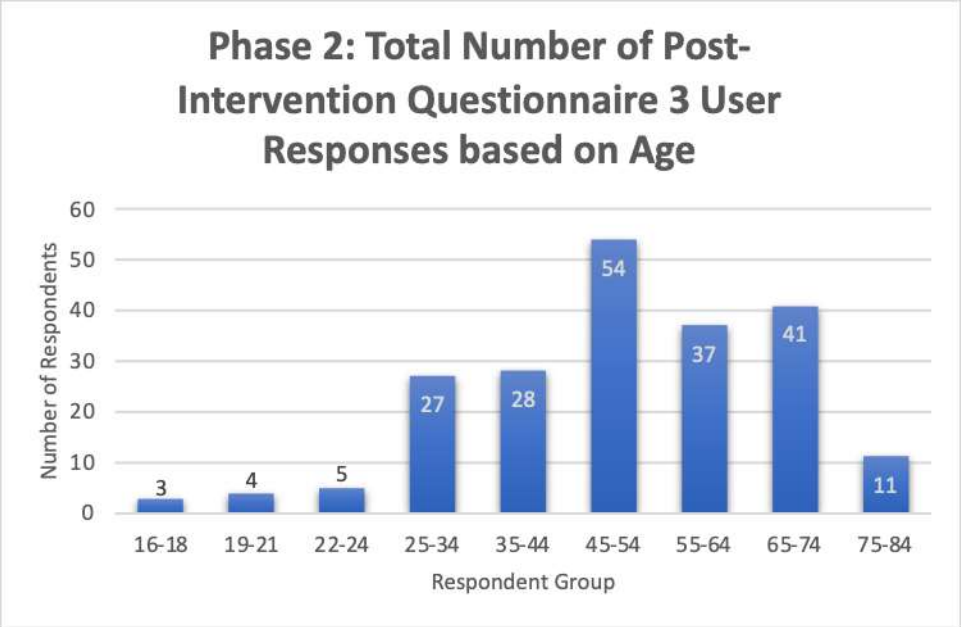
Graph 44: Phase 2 total number of Post-Intervention Questionnaire 2 User responses based on Onsite Activities



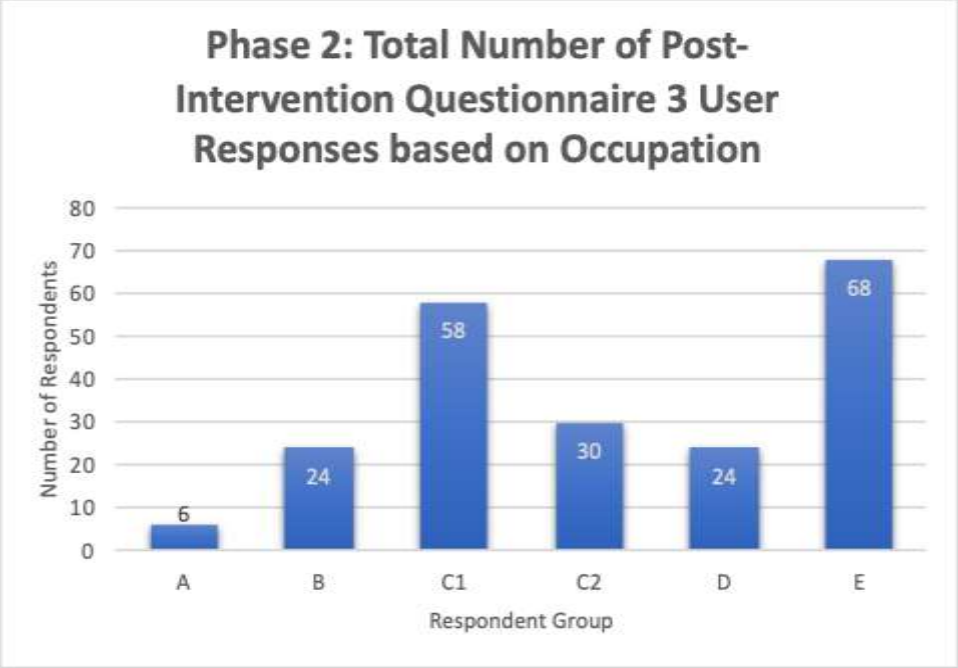
Graph 45: Phase 2 total number of Post-Intervention Questionnaire 3 User responses based on Usage Type



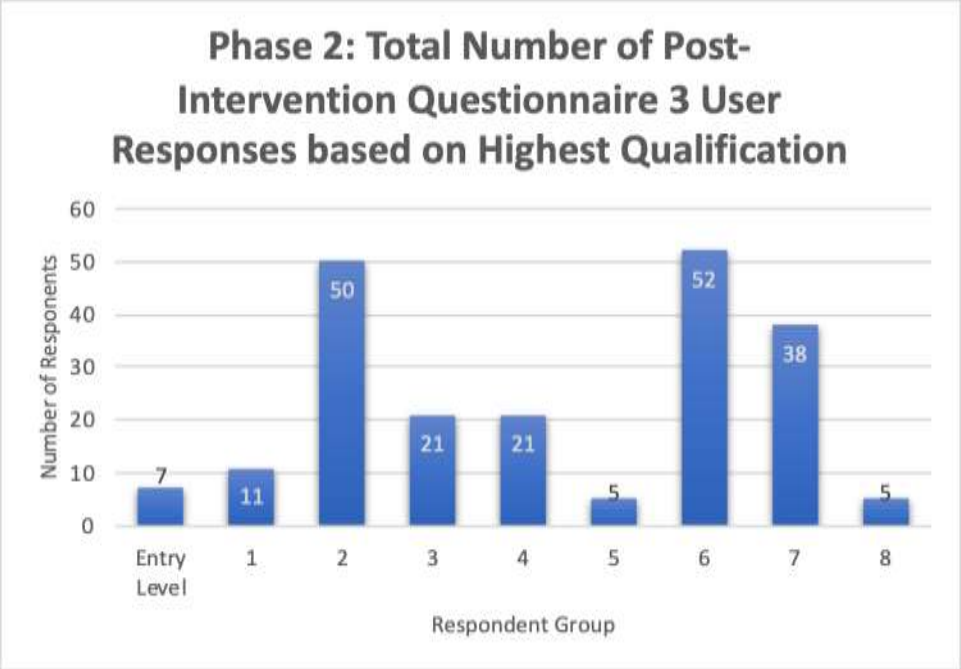
Graph 46: Phase 2 total number of Post-Intervention Questionnaire 3 User responses based on Gender



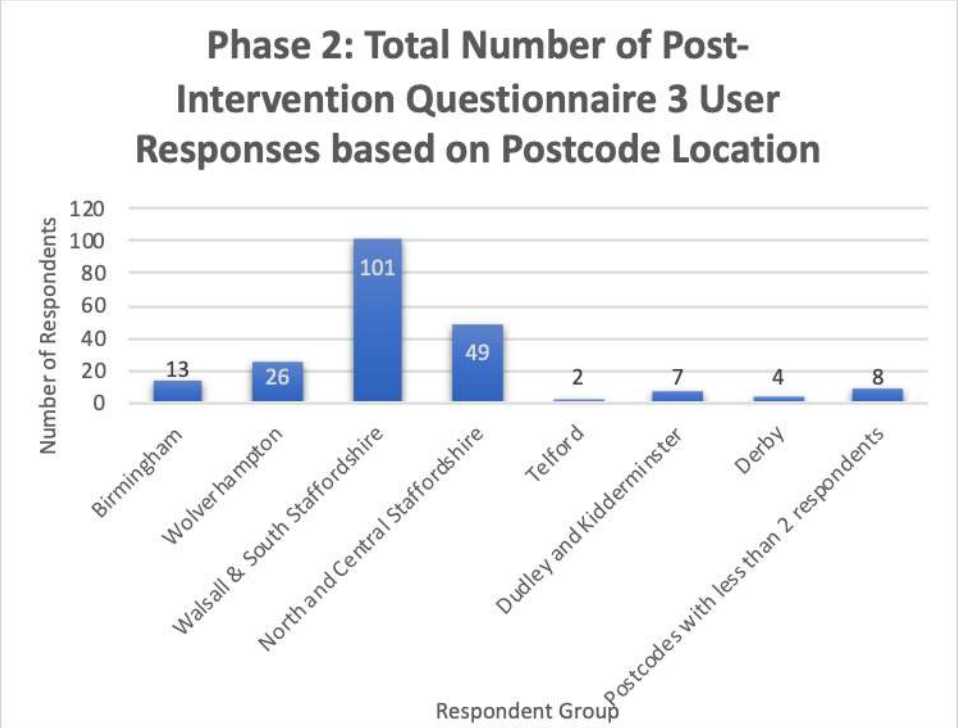
Graph 47: Phase 2 total number of Post-Intervention Questionnaire 3 User responses based on Age



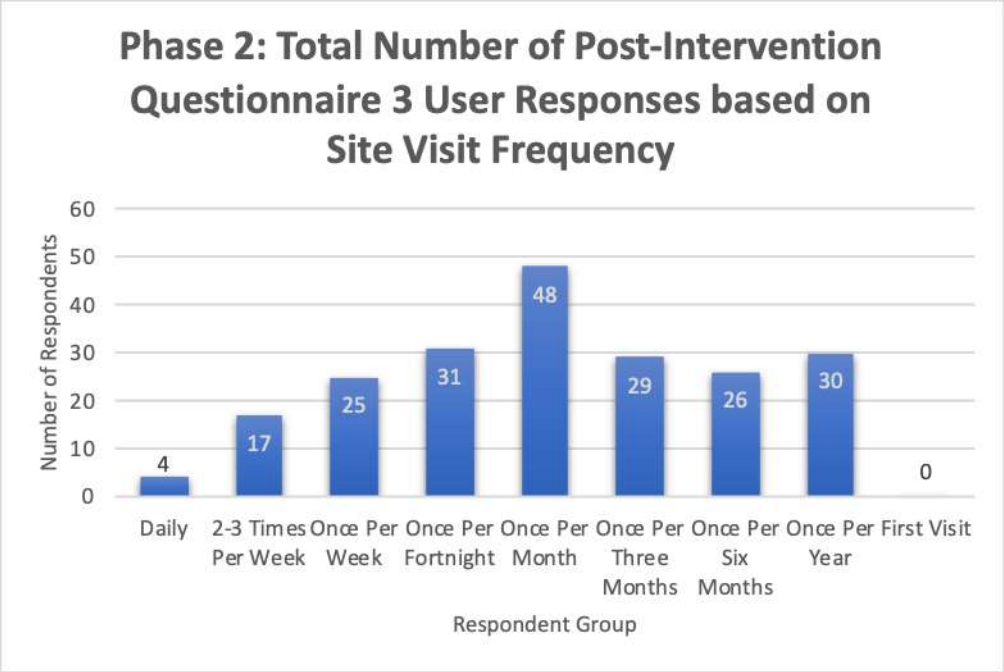
Graph 48: Phase 2 total number of Post-Intervention Questionnaire 3 User responses based on Occupation



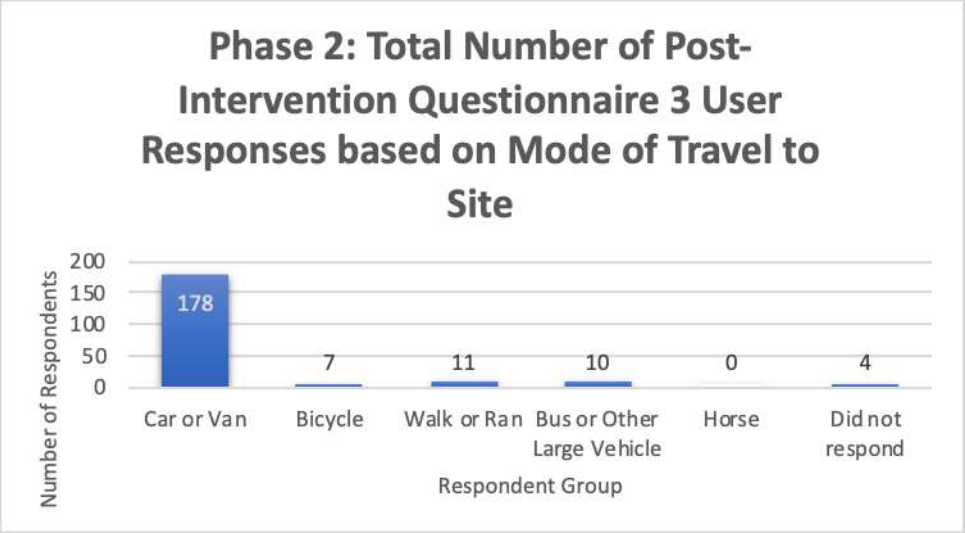
Graph 49: Phase 2 total number of Post-Intervention Questionnaire 3 User responses based on Highest Qualification



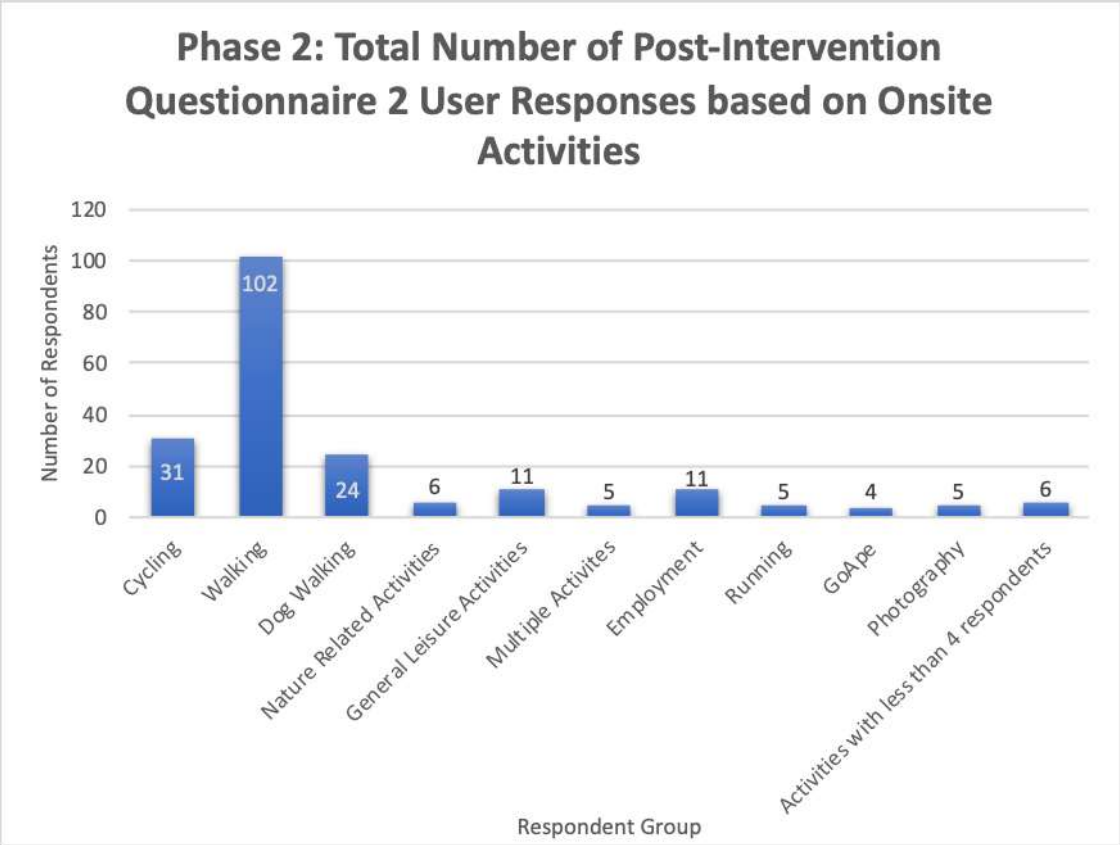
Graph 50: Phase 2 total number of Post-Intervention Questionnaire 3 User responses based on Postcode Location



Graph 51: Phase 2 total number of Post-Intervention Questionnaire 3 User responses based on Site Visit Frequency



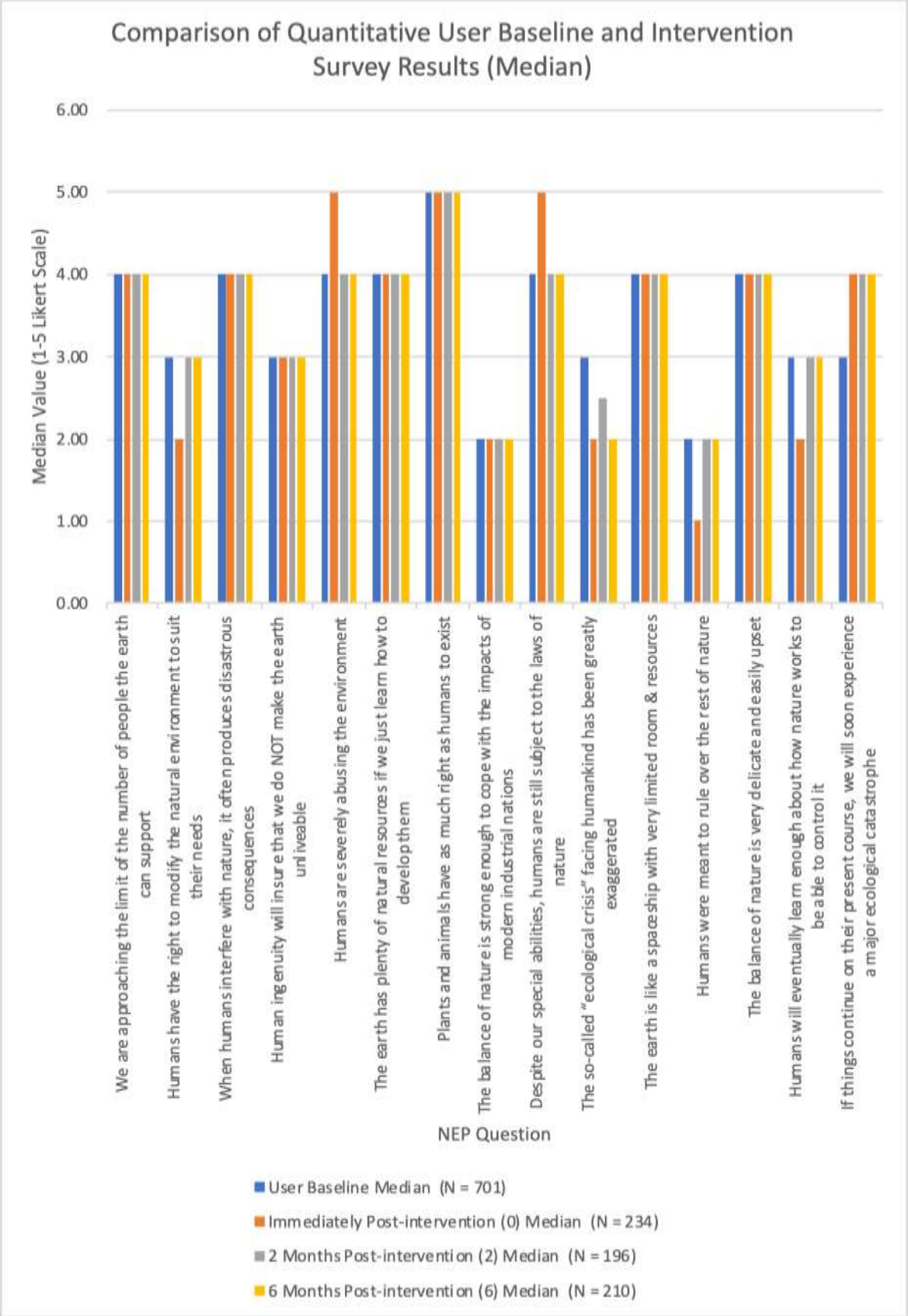
Graph 52: Phase 2 total number of Post-Intervention Questionnaire 3 User responses based on Mode of Travel to Site



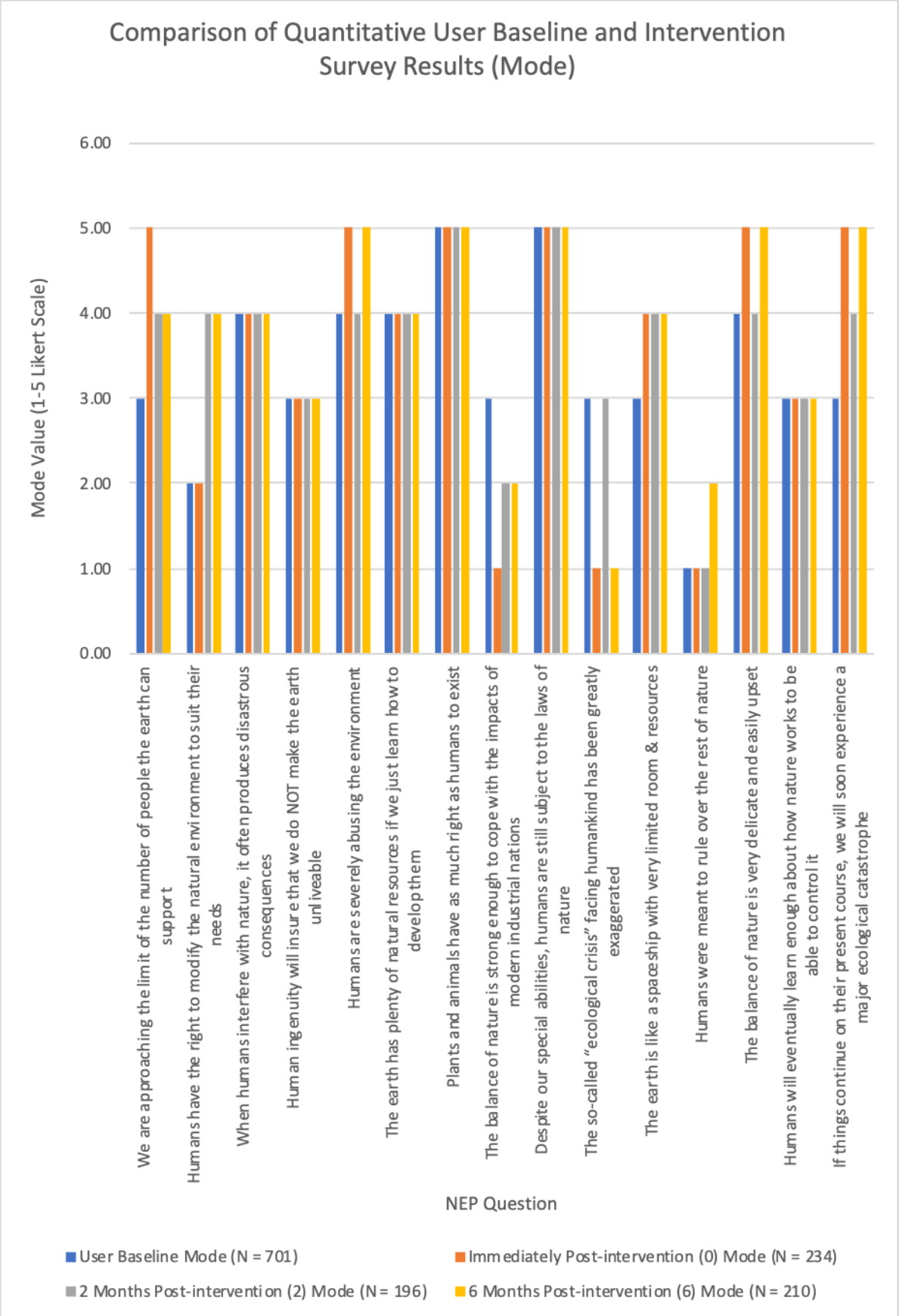
Graph 53: Phase 2 total number of Post-Intervention Questionnaire 3 User responses based on Onsite Activities

	New Ecological Paradigm (NEP) Question	User Baseline		Immediately Post-intervention (0)		2 Months Post-intervention (2)		6 Months Post-intervention (6)	
		Median (N = 701)	Mode (N = 701)	Median (N = 234)	Mode (N = 234)	Median (N = 196)	Mode (N = 196)	Median (N = 210)	Mode (N = 210)
1	We are approaching the limit of the number of people the earth can support	4.00	3.00	4.00	5	4.00	4	4.00	4
2	Humans have the right to modify the natural environment to suit their needs	3.00	2.00	2.00	2	3.00	4	3.00	4
3	When humans interfere with nature, it often produces disastrous consequences	4.00	4.00	4.00	4	4.00	4	4.00	4
4	Human ingenuity will insure that we do NOT make the earth unliveable	3.00	3.00	3.00	3	3.00	3	3.00	3
5	Humans are severely abusing the environment	4.00	4.00	5.00	5	4.00	4	4.00	5
6	The earth has plenty of natural resources if we just learn how to develop them	4.00	4.00	4.00	4	4.00	4	4.00	4
7	Plants and animals have as much right as humans to exist	5.00	5.00	5.00	5	5.00	5	5.00	5
8	The balance of nature is strong enough to cope with the impacts of modern industrial nations	2.00	3.00	2.00	1	2.00	2	2.00	2
9	Despite our special abilities, humans are still subject to the laws of nature	4.00	5.00	5.00	5	4.00	5	4.00	5
10	The so-called “ecological crisis” facing humankind has been greatly exaggerated	3.00	3.00	2.00	1	2.50	3	2.00	1
11	The earth is like a spaceship with very limited room & resources	4.00	3.00	4.00	4	4.00	4	4.00	4
12	Humans were meant to rule over the rest of nature	2.00	1.00	1.00	1	2.00	1	2.00	2
13	The balance of nature is very delicate and easily upset	4.00	4.00	4.00	5	4.00	4	4.00	5
14	Humans will eventually learn enough about how nature works to be able to control it	3.00	3.00	2.00	3	3.00	3	3.00	3
15	If things continue on their present course, we will soon experience a major ecological catastrophe	3.00	3.00	4.00	5	4.00	4	4.00	5

Table 14: Median and Modal values of baseline and intervention longitudinal survey scores



Graph 54: Median NEP values of baseline and post-intervention scores



Graph 55: Mode NEP values of baseline and post-intervention scores

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi-Coefficient Value	Cramer's V Value
We are approaching the limit of the number of people the earth can support	24.926	12	0.015	0.138	0.079
Humans have the right to modify the natural environment to suit their needs	27.755	12	0.006	0.145	0.084
When humans interfere with nature, it often produces disastrous consequences	35.070	12	0.000	0.163	0.094
Human ingenuity will insure that we do NOT make the earth unliveable	20.371	12	0.060	0.124	0.072
Humans are severely abusing the environment	57.298	12	0.000	0.209	0.120
The earth has plenty of natural resources if we just learn how to develop them	18.879	12	0.092	0.120	0.069
Plants and animals have as much right as humans to exist	20.062	12	0.066	0.124	0.071
The balance of nature is strong enough to cope with the impacts of modern industrial nations	75.508	12	0.000	0.240	0.139
Despite our special abilities, humans are still subject to the laws of nature	57.158	12	0.000	0.208	0.120
The so-called "ecological crisis" facing humankind has been greatly exaggerated	96.937	12	0.000	0.271	0.157
The earth is like a spaceship with very limited room & resources	31.511	12	0.002	0.155	0.089
Humans were meant to rule over the rest of nature	59.823	12	0.000	0.214	0.123
The balance of nature is very delicate and easily upset	39.038	12	0.000	0.173	0.100
Humans will eventually learn enough about how nature works to be able to control it	52.294	12	0.000	0.199	0.115
If things continue on their present course, we will soon experience a major ecological catastrophe	86.133	12	0.000	0.256	0.148

Table 15: Chi-squared test of Phase 1 user baseline with Phase 2 post-intervention responses

For analysis of NEP data, agreement with the odd numbered questions (higher scores) and disagreement with the even numbered questions (lower scores) indicates a pro-environmental world view (Dunlap *et al*., 2000). As can be seen in Tables 14 and 15, and Graphs 54 and 55, seven NEP questions received improved median and mode values from baseline to the first post-intervention questionnaire, with eight median and mode values equalling baseline. Median values of the 2month questionnaire revert to baseline levels in thirteen NEP questions and are more pro-environmental than baseline in two questions. Mode values of the 2month questionnaire revert to baseline levels in ten NEP questions, become less pro-environmental than baseline in one question, and are more pro-environmental than baseline in four questions. Median values of the 6 month questionnaire revert to baseline levels in fourteen NEP questions and are more pro-environmental than baseline in one question. Mode values of the 6month questionnaire revert to baseline levels in six NEP questions, become less pro-environmental than baseline in two questions, and are more pro-environmental than baseline in seven questions. Overall comparison of the baseline and collective post-intervention results has identified that there are twelve NEP questions that are statistically significant at $p<0.05$, and nine NEP questions that are statistically significant at $p<0.001$. Phi coefficient values all lie between 0.120 to 0.271, and Cramer's V values all lie within 0.069 to 0.157, which suggests a positive weak association that is statistically significant but little variation is explained. This indicates that the intervention was a very strong indicator of pro-environmental attitudes and succeeded in improving participant attitudes.

Comparison of collective post-intervention median values and mode values for gender found that in both males and females had equal scores on thirteen NEP

questions, and females were more pro-environmental in two questions (Appendix 11, Table 52), that overall, females were slightly more pro-environmental. Chi-square values across the 6 month longitudinal intervention found that there are four NEP questions that are statistically significant at $p<0.05$, and two NEP questions that are statistically significant at $p<0.001$. Phi coefficient values lie between 0.039 to 0.231 (Appendix 11, Table 53), which suggests a positive weak association that is statistically significant but little variation is explained. These results indicate that gender is a weak indicator of pro-environmental attitudes, allowing the null hypothesis to be accepted, that gender is not a strong indicator of pro-environmental responses on the NEP.

For age, median values and mode values were broadly similar across the categories, however 16-18 and to a lesser extent 55-64 are less pro-environmental, and that 19-21 and 45-54 categories were more pro-environmental (Appendix 11, Table 54). Chi-square values across the longitudinal intervention found that there are nine NEP questions that are statistically significant at $p<0.05$, and two NEP questions that are statistically significant at $p<0.001$. Cramer's V values lie between 0.114 to 0.171 (Appendix 11, Table 55), which suggests a positive weak association that is statistically significant but little variation is explained. These results indicate that age is a moderately strong indicator of pro-environmental attitudes, allowing the alternative hypothesis to be accepted.

For occupation, median values identified category D as being less pro-environmental and categories B and C1 were more pro-environmental, and modal values identified category D as being less pro-environmental and category C1 as being more pro-environmental (Appendix 11, Table 56). Chi-square values across the 6 month intervention found that there are ten NEP questions that are statistically significant at

$p<0.05$, and six NEP questions are statistically significant at $p<0.001$. Cramer's V values lie between 0.097 to 0.168 (Appendix 11, Table 57), which suggests a positive weak association that is statistically significant but little variation is explained. These results indicate that occupation is a strong indicator of pro-environmental attitudes, allowing the alternative hypothesis to be accepted.

For highest academic qualification, median and modal values were largely similar and identified category Level 2 as being less pro-environmental and categories Level 5 and 6 as being more pro-environmental (Appendix 11, Table 58). Chi-square values across the 6 month longitudinal intervention found that all fifteen NEP questions are statistically significant at $p<0.05$, and ten NEP questions are statistically significant at $p<0.001$. Cramer's V values lie between 0.147 to 0.237 (Appendix 11, Table 59), which suggests a positive weak association that is statistically significant but little variation is explained. These results indicate that highest academic qualification is a very strong indicator of pro-environmental attitudes, allowing the alternative hypothesis to be accepted.

For postcode, median and modal values were broadly similar and identified category B, TF and WS as being less pro-environmental and categories DE and DY as being more pro-environmental (Appendix 11, Table 60). Chi-square values across the 6 month longitudinal intervention found that nine NEP questions are statistically significant at $p<0.05$, and three NEP questions are statistically significant at $p<0.001$. Cramer's V values lie between 0.201 to 0.271 (Appendix 11, Table 61), which suggests a positive weak association that is statistically significant but little variation is explained. These results indicate that postcode is a moderately strong indicator of pro-environmental attitudes, allowing the alternative hypothesis to be accepted.

For visit frequency, median and modal values were largely similar and identified category Daily, Once a Week and Once a Fortnight as being less pro-environmental and categories First Visit, 2/3 Times a Week, Once a Month and Less than Once Every 6 Months as being more pro-environmental (Appendix 11, Table 62). Chi-square values across the longitudinal intervention found that twelve NEP questions are statistically significant at $p<0.05$, and five NEP questions are statistically significant at $p<0.001$. Cramer's V values lie between 0.092 to 0.175 (Appendix 11, Table 63), which suggests a positive weak association that is statistically significant but little variation is explained. These results indicate that visit frequency is a strong indicator of pro-environmental attitudes, allowing the alternative hypothesis to be accepted.

For mode of transport, median and modal values were largely similar and identified categories Bicycle and Bus/Minibus/Motorhome as being less pro-environmental and categories Car/Car share/Van and Walk/Run as being more pro-environmental (Appendix 11, Table 64). Chi-square values across the 6 month intervention found that eleven NEP questions are statistically significant at $p<0.05$, and seven NEP questions are statistically significant at $p<0.001$. Cramer's V values lie between 0.089 to 0.172 (Appendix 11, Table 65), which suggests a positive weak association that is statistically significant but little variation is explained. These results indicate that mode of transport is a strong indicator of pro-environmental attitudes, allowing the alternative hypothesis to be accepted.

For activity group, median values identified categories Employment and Cycling as being less pro-environmental and categories Running/Jogging, Nature Watching and Photography as being more pro-environmental. Modal values identified Cycling as being less pro-environmental and Running/Jogging, Nature Watching and

Photography as being more pro-environmental (Appendix 11, Table 66). Chi-square values across the 6 month intervention found that twelve NEP questions are statistically significant at $p<0.05$, and six NEP questions are statistically significant at $p<0.001$. Cramer's V values lie between 0.164 to 0.257 (Appendix 11, Table 67), which suggests a positive weak association that is statistically significant but little variation is explained. These results indicate that activity group is a very strong indicator of pro-environmental attitudes, allowing the alternative hypothesis to be accepted.

For user group type, median and modal values were largely similar and identified category Employee as being less pro-environmental and categories Visitor and Resident as being more pro-environmental (Appendix 11, Table 68). Chi-square values across the 6 month intervention found that twelve NEP questions are statistically significant at $p<0.05$, and one NEP question is statistically significant at $p<0.001$. Cramer's V values lie between 0.057 to 0.151 (Appendix 11, Table 69), which suggests a positive weak association that is statistically significant but little variation is explained. These results indicate that user group type is a strong indicator of pro-environmental attitudes, allowing the alternative hypothesis to be accepted.

4.2.5 Results of BRUMS Mood Scale

BRUMS Subscale	Alpha
Anger	0.914
Depression	0.890
Tension	0.856
Vigour	0.884
Fatigue	0.885
Confusion	0.849
Overall for all 0, 2 and 6 month responses	0.946

Table 16: Cronbach Alpha scores for original BRUMS for entire longitudinal study

Cronbach Alpha results for the original BRUMS mood scale indicate a very strong internal consistency across the entire longitudinal study of 0.946, where 0 is weak and 1 is strong internal consistency. The Anger subscale also exhibited a very strong internal consistency of 0.914, with the other five subscales having strong internal consistencies of between 0.849 to 0.890 (Table 16).

BRUMS Subscale	Alpha
Anger	0.860
Depression	0.879
Tension	0.866
Vigour	0.886
Fatigue	0.897
Confusion	0.828
Overall for all 0 month responses	0.938

Table 17: Cronbach Alpha scores for original BRUMS for 0 month questionnaire results

Cronbach Alpha results for the original BRUMS mood scale indicate a very strong internal consistency for the 0 month questionnaire responses of 0.938. All six subscales exhibited strong internal consistencies of between 0.828 to 0.897 (Table 17).

BRUMS Subscale	Alpha
Anger	0.926
Depression	0.914
Tension	0.861
Vigour	0.903
Fatigue	0.881
Confusion	0.854
Overall for all 2 month responses	0.949

Table 18: Cronbach Alpha scores for original BRUMS for 2 month questionnaire results

Cronbach Alpha results for the original BRUMS mood scale indicate a very strong internal consistency for the 2 month questionnaire responses of 0.949. Confusion, fatigue and Tension subscales exhibited strong internal consistencies of between 0.854 to 0.881, with Anger, Depression and Vigour subscales exhibiting very strong internal consistencies of between 0.903 to 0.926 (Table 18).

BRUMS Subscale	Alpha
Anger	0.947
Depression	0.881
Tension	0.844
Vigour	0.861
Fatigue	0.872
Confusion	0.868
Overall for all 6 month responses	0.951

Table 19: Cronbach Alpha scores for original BRUMS for 6 month questionnaire results

Cronbach Alpha results for the original BRUMS mood scale indicate a very strong internal consistency for the 6 month questionnaire responses of 0.951. The Anger subscale also exhibited a very strong internal consistency of 0.947, with the other five subscales having strong internal consistencies of between 0.844 to 0.881 (Table 19). Overall, from Tables 16, 17, 18 and 19 the Cronbach Alpha scores are consistently strong to very strong across the 6 month survey, indicating the original version BRUMS mood scale has a good reliability.

Mood scale	Alpha
Original BRUMS and ten experimental items	0.955
Ten experimental items	0.830

Table 20: Cronbach Alpha scores for the mood scale used across the entire longitudinal study

Mood scale	Alpha
Original BRUMS and ten experimental items	0.951
Ten experimental items	0.833

Table 21: Cronbach Alpha scores for the mood scale used for 0 month questionnaire results

Mood scale	Alpha
Original BRUMS and ten experimental items	0.959
Ten experimental items	0.843

Table 22: Cronbach Alpha scores for the mood scale used for 2 month questionnaire results

Mood scale	Alpha
Original BRUMS and ten experimental items	0.956
Ten experimental items	0.815

Table 23: Cronbach Alpha scores for the mood scale used for 6 month questionnaire results

In all cases of the ten experimental mood scale items used in the intervention, internal consistencies are strong for the entire longitudinal study and for the individual 0, 2 and 6 month questionnaires, with values ranging between 0.815 to

0.843. In all cases of the original BRUMS plus ten experimental mood scale items used in the intervention, internal consistencies are very strong for the entire longitudinal study and for the individual 0, 2 and 6 month questionnaires, with values ranging between 0.951 to 0.959 (Table 20; 21; 22; 23). Overall, from Tables 21, 22 and 23 the Cronbach Alpha scores are consistently strong to very strong across the 6 month survey for both the original BRUMS plus ten experimental adjectives (BRUMS+10), and also the ten experimental adjectives on their own. This indicates that the BRUMS+10 mood scale, and the ten experimental items alone both have good reliability.

A factor analysis was performed on the BRUMS mood scale used post-intervention.

Anger Factor					
Components		Annoyed	Bitter	Angry	Bad tempered
Correlation	Annoyed	1.000	0.739	0.806	0.599
	Bitter	0.739	1.000	0.806	0.755
	Angry	0.806	0.806	1.000	0.716
	Bad tempered	0.599	0.755	0.716	1.000
Sig. (1-tailed)	Annoyed		0.000	0.000	0.000
	Bitter	0.000		0.000	0.000
	Angry	0.000	0.000		0.000
	Bad tempered	0.000	0.000	0.000	
a. Determinant = 0.045					
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.820					
Bartlett's Test of Sphericity = 1969.508, Significance = 0.000 (p<0.001)					

Table 24: BRUMS Anger factor component correlations

Depression Factor					
Components		Depressed	Downhearted	Unhappy	Miserable
Correlation	Depressed	1.000	0.781	0.647	0.616
	Downhearted	0.781	1.000	0.766	0.581
	Unhappy	0.647	0.766	1.000	0.639
	Miserable	0.616	0.581	0.639	1.000
Sig. (1-tailed)	Depressed		0.000	0.000	0.000
	Downhearted	0.000		0.000	0.000
	Unhappy	0.000	0.000		0.000
	Miserable	0.000	0.000	0.000	
a. Determinant = 0.083					
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.775					
Bartlett's Test of Sphericity = 1586.308, Significance = 0.000 (p<0.001)					

Table 25: BRUMS Depression factor component correlations

Tension Factor					
Components		Panicky	Anxious	Worried	Nervous
Correlation	Panicky	1.000	0.666	0.588	0.430
	Anxious	0.666	1.000	0.760	0.599
	Worried	0.588	0.760	1.000	0.547
	Nervous	0.430	0.599	0.547	1.000
Sig. (1-tailed)	Panicky		0.000	0.000	0.000
	Anxious	0.000		0.000	0.000
	Worried	0.000	0.000		0.000
	Nervous	0.000	0.000	0.000	
a. Determinant = 0.142					
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.794					
Bartlett's Test of Sphericity = 1243.328, Significance = 0.000 (p<0.001)					

Table 26: BRUMS Tension factor component correlations

Vigour Factor					
Components		Lively	Energetic	Active	Alert
Correlation	Lively	1.000	0.678	0.613	0.528
	Energetic	0.678	1.000	0.760	0.633
	Active	0.613	0.760	1.000	0.726
	Alert	0.528	0.633	0.726	1.000
Sig. (1-tailed)	Lively		0.000	0.000	0.000
	Energetic	0.000		0.000	0.000
	Active	0.000	0.000		0.000
	Alert	0.000	0.000	0.000	
a. Determinant = 0.099					
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.806					
Bartlett's Test of Sphericity = 1471.069, Significance = 0.000 (p<0.001)					

Table 27: BRUMS Vigour factor component correlations

Fatigue Factor					
Components		Wornout	Exhausted	Sleepy	Tired
Correlation	Wornout	1.000	0.758	0.596	0.661
	Exhausted	0.758	1.000	0.617	0.655
	Sleepy	0.596	0.617	1.000	0.669
	Tired	0.661	0.655	0.669	1.000
Sig. (1-tailed)	Wornout		0.000	0.000	0.000
	Exhausted	0.000		0.000	0.000
	Sleepy	0.000	0.000		0.000
	Tired	0.000	0.000	0.000	
a. Determinant = 0.106					
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.813					
Bartlett's Test of Sphericity = 1431.819, Significance = 0.000 (p<0.001)					

Table 28: BRUMS Fatigue factor component correlations

Confusion Factor					
Components		Confused	Muddled	Mixedup	Uncertain
Correlation	Confused	1.000	0.570	0.609	0.480
	Muddled	0.570	1.000	0.700	0.602
	Mixedup	0.609	0.700	1.000	0.602
	Uncertain	0.480	0.602	0.602	1.000
Sig. (1-tailed)	Confused		0.000	0.000	0.000
	Muddled	0.000		0.000	0.000
	Mixedup	0.000	0.000		0.000
	Uncertain	0.000	0.000	0.000	
a. Determinant = 0.170					
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.815					
Bartlett's Test of Sphericity = 1128.118, Significance = 0.000 (p<0.001)					

Table 29: BRUMS Confusion factor component correlations

Experimental Factor											
Components		Overloaded	Disgust	Joy	Guilt	Satisfied	Shame	Indifferent	Fear	Resentful	Proud
Correlation	Overloaded	1.000	0.325	0.253	0.489	0.221	0.429	0.407	0.556	0.408	0.250
	Disgust	0.325	1.000	0.052	0.447	-0.011	0.640	0.115	0.444	0.670	0.038
	Joy	0.253	0.052	1.000	0.243	0.703	0.141	0.212	0.233	0.092	0.769
	Guilt	0.489	0.447	0.243	1.000	0.206	0.652	0.253	0.649	0.515	0.257
	Satisfied	0.221	-0.011	0.703	0.206	1.000	0.138	0.254	0.148	0.092	0.733
	Shame	0.429	0.640	0.141	0.652	0.138	1.000	0.247	0.572	0.644	0.149
	Indifferent	0.407	0.115	0.212	0.253	0.254	0.247	1.000	0.339	0.276	0.253
	Fear	0.556	0.444	0.233	0.649	0.148	0.572	0.339	1.000	0.539	0.241
	Resentful	0.408	0.670	0.092	0.515	0.092	0.644	0.276	0.539	1.000	0.122
	Proud	0.250	0.038	0.769	0.257	0.733	0.149	0.253	0.241	0.122	1.000
Sig. (1-tailed)	Overloaded		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Disgust	0.000		0.095	0.000	0.386	0.000	0.002	0.000	0.000	0.167
	Joy	0.000	0.095		0.000	0.000	0.000	0.000	0.000	0.010	0.000
	Guilt	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000
	Satisfied	0.000	0.386	0.000	0.000		0.000	0.000	0.000	0.010	0.000
	Shame	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000
	Indifferent	0.000	0.002	0.000	0.000	0.000	0.000		0.000	0.000	0.000
	Fear	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000
	Resentful	0.000	0.000	0.010	0.000	0.010	0.000	0.000	0.000		0.001
	Proud	0.000	0.167	0.000	0.000	0.000	0.000	0.000	0.000	0.001	
a. Determinant = 0.006											
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.835											
Bartlett's Test of Sphericity = 3270.405, Significance = 0.000 (p<0.001)											

Table 30: BRUMS experimental factor component correlations

From Tables 24, 25, 26, 27, 28 and 29 it can be seen that all components have moderately strong to strong positively significant correlations with the other components within their respective Factor groupings. Factor analysis verified that the six BRUMS factors accounted for 69.09% of the variance. All Kaiser-Meyer-Olkin test results were highly scoring of between 0.775 and 0.835, together with all results for Bartlett's Test of Sphericity showing significance at $p<0.001$, which both indicate that the data is suitable for factor analysis. In Table 24 correlations between the adjectives Angry and Annoyed, and also Angry and Bitter exceed 0.8 indicating some of these adjectives may both be examining the same emotion, therefore use of all these adjectives may be unnecessary. All other component correlations do not exceed 0.8, and do not examine the same emotion suggesting they are all necessary as part of the BRUMS scale. From Table 30 it can be seen that the experimental components largely have moderately strong correlations, with a smaller number having strong correlations, and others having weak correlations. The vast majority of experimental component results are positively significant, with the only exceptions being between Disgust and Joy, and between Disgust and Satisfied. Despite these two insignificance findings, all emotion adjectives were felt by participants, including the positive EAs, as well as guilt and disgust. As the qualitative feedback from the pilot study of the intervention poster and BRUMS identified that disgust was particularly felt, both the pilot and quantitative intervention study results allow the alternative hypothesis to be accepted that positive appeals, guilt appeals and disgust appeals have a positive effect on respondent pro-environmental attitudes, and particularly so when used in combination.

4.2.6 Overview of Accepted Hypotheses

From the initial proposal of null and alternative hypotheses summarised in Table 4 of section 2.2.6, the accepted hypotheses based on the quantitative intervention study results are summarised in Table 31.

	Accepted Hypothesis
Activity Group	Alternative Hypothesis: participant activity group is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
User Group	Alternative Hypothesis: participant user group type is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Highest Qualification	Alternative Hypothesis: participant highest qualification is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Gender	Null Hypothesis: participant gender is not a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Age	Alternative Hypothesis: participant age is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Postcode Location	Alternative Hypothesis: participant area of residence is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Mode of Travel	Alternative Hypothesis: participant mode of travel is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Occupation	Alternative Hypothesis: participant occupation is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Visit Frequency	Alternative Hypothesis: participant visit frequency is a predictor of pro-environmental responses on the New Ecological Paradigm scale.
Positive EA	Alternative Hypothesis: positive appeals have a positive effect on respondent pro-environmental attitudes.
Guilt EA	Alternative Hypothesis: Guilt appeals have a positive effect on respondent pro-environmental attitudes.
Disgust EA	Alternative Hypothesis: Disgust appeals have a positive effect on respondent pro-environmental attitudes.

Table 31: Summary of accepted hypotheses from quantitative intervention study

Chapter Five

Discussion

5.0 Introduction to the Chapter

This section will initially give an overview of the impacts to parkland areas, the causes behind these impacts, what is being done to combat these issues, and discussion into why this research is so vital. Following this will be Phase 1 and Phase 2 discussions on the literature, methods and results specific to each Phase.

Global damage to public parks is an issue that not only is becoming increasingly recognised by members of the public at greenspace sites on a local level (Northumberland Coast AONB, 2013; Cannock Chase AONB, 2000; Chilterns AONB, 2008; Cannock Chase AONB, 2012; IPSOS, 2012; Shropshire Hills AONB, 2013; NPS, 2016; Malvern Hills AONB, 2019), but has been elevated to national and international public attention (Moore, 2017; Watson *et al.*, 2018), and has generated government environmental legislative action to ensure the long term protection of these parks (HM Government, 2018; National Parks Conservation Association, 2019; BC Parks, 2019). This is a growing challenge for parkland managers, to protect and sustainably maintain these areas, simultaneous to pressure from the need to generate funds to enable this work which largely comes from mass tourism, and the threat of habitat loss from site development (Moore, 2017; Simmonds *et al.*, 2018; Watson *et al.*, 2018; Cannock Chase Council, 2019).

Whilst development of greenspaces is largely out of the control of park users, their choice of behaviour is within their control. The literature to date has tended to examine the issues of on-site behaviour and various attempts to remediate this

(Dimitrakopoulos *et al.*, 2009; Pickering *et al*., 2009; Liu, Ouyang and Miao, 2009; Kim, Airey, and Szivas, 2011; Sreetheran, 2016; Yu *et al.*, 2018), yet even with this body of research, the outcomes fail to solve the problems associated with poor behaviour. Many authors have recognised this and have called for urgent research into the cognitive processes, i.e. knowledge and attitudes, which are argued to directly influence these behaviours (Kollmus and Agyeman, 2002; Franzen, 2003; Luo and Deng, 2008; Liu, Ouyang and Miao, 2009; Duerden and Witt, 2010; Gronhoj and Thogersen, 2011; Yu *et al*., 2011; Hvenegaard, 2016). Currently very little research exists into these knowledge and attitudinal influences, particularly so within the environmental context, making the present study a valuable addition to this study area, which has thus far received insufficient attention despite its global significance.

The present study has provided further research to assist in filling this gap in the knowledge in a number of ways. The Cannock Chase AONB study site has received no academic research at all, with all previous studies being simply based around usage data (Cannock Chase AONB, 2000; 2012). The present study has addressed this by providing academic research and new contributions to knowledge into the influential nature of knowledge and attitudes on behaviours by use of a low cost-high reach, site-specific educational intervention (Kidd *et al*., 2015; Hutchinson *et al.*, 2015; Au *et al*., 2015; Schwarzer *et al.*, 2016) containing emotional appeals (EAs) (Brennan and Binney, 2009; Beitelspacher *et al*., 2012; Roozen, 2013; Packer, Ballantyne and Hughes, 2014; Previte, Russell-Bennett and Parkinson, 2015; Septianto and Tjiptono, 2019), that could easily be replicated at other AONB sites, and similarly replicated at non-AONB parks. This site-specific intervention also contributes new knowledge of an electronic delivery method, and also a longitudinal intervention design. These studies discussed above also argue that both educational

interventions and EAs need further research separately and collaboratively, so that site-specific strategies can be created and tested for their efficacy, as it is argued that site-specific strategies are not necessarily able to be generalised across study sites, necessitating examination of new specific methods (Lopez-Mosquera and Sanchez, 2011). The present study further addresses these gaps in the call for site-specific understanding by contributing new knowledge to the content and design of a questionnaire which is designed to measure attitudes and behaviours specifically on Cannock Chase AONB.

In addition to pro-environmental improvements the present study has generated with its own participants, the findings of the present study can go on to help inform Cannock Chase AONB management strategies locally. This research can assist in informing further research and management strategies locally, and even internationally and globally.

5.1 Discussion of Phase 1 of Study

The aims of this study stretch across two distinct Phases. Using the Theory of Planned Behaviour (TPB), Phase 1 identified baseline Cannock Chase AONB user and a comparison of non-user pro-environmental attitudes using the New Ecological Paradigm (NEP) scale. Through examination of this theory, this scale, and the wider methods, together with literature and results of Phase 1 in this section, the present study has contributed new knowledge to this subject area and specifically for Cannock Chase, which is as yet unstudied.

5.1.1 Discussion of Qualitative Interviews

Initial brief qualitative interviews using semi-structured questions obtained information on the positive and negative issues users associate with their visits to Cannock Chase AONB, and from transcription of responses, allowed both positive and negative reoccurring themes to be identified. Positive themes included: free access to the park, it is important to preserve the park for future generations, visitors can learn about the site (Cannock Chase AONB, 2000), good site facilities, a variety of places to visit, it is close to where people live for easy access (Cannock Chase AONB, 2000; 2012) and the site is well managed (Cannock Chase AONB, 2012). Negative themes included: fees for car parking, insufficient facilities on-site (Cannock Chase AONB, 2000), soil erosion, littering, dog fouling, damage to the park caused by other site users, poor etiquette of other activity groups (Cannock Chase AONB, 2000; 2012) and air pollution (Cannock Chase AONB, 2012).

These specific feedback items were expected, as they are also discussed in the two site usage surveys conducted in 2000 and 2012. These positive and negative issues, and reoccurring themes provided good insight into user experiences, and as they match previous research findings suggest they were a reliable guide from which to create the draft copy of the quantitative questionnaire. These positive and negative themes experienced at Cannock Chase AONB by user groups are common occurrences across parks globally (Pickering *et al*., 2009; Liu, Ouyang and Miao, 2009; Kim, Airey, and Szivas, 2011; Sreetheran, 2016), although some smaller differences may occur between sites, including parking fees, and close proximity of where users live and site access particularly on the larger AONB's. As such, these generic themes could be applied to future studies that are similar to the present one, and help inform future development of semi-structured interview questions and

quantitative questionnaires for Cannock Chase and other parks, with only minimal extra data collection required to determine issues pertinent to other sites or changes to Cannock Chase management strategies.

Kirby (2008) discusses a number of issues that arise with the use of interviews, i.e. asking the correct questions to support the aims of the study, providing an interview atmosphere and location that does not induce bias, and ultimately the accuracy of the responses which are all subjective. Graneheim, Lindgren and Lundman (2017) also discuss the potential issues with a more inductive qualitative analysis, in that only surface issues are examined which are those which the researcher expects to find, and which limits theory development. Studies that have used interviews rarely give discussion as to how these issues have been minimised or avoided. Within its control, this study has actively attempted to minimise these by the use of a short list of nine semi-structured questions that are informed by official, individually produced site-specific reports and usage surveys, and long term site–specific experience of the researcher, which Greaves, Zibarras and Stride (2013) argue mitigates these issues. These supporting factors were used to ensure the questions adhered to the study's aims, whilst providing flexibility to pursue further key topic areas that may arise from participant responses.

The interview location was unaltered by the interviewer, with all interviews conducted where participants were on site. This method, together with a brief 5-10min interview time, was used to allow participants to feel comfortable and encourage as many park users to participate as possible. Whilst discussion has been towards intervention related study methods, it should be noted that authors widely argue the efficacy of brief study methods, which provide practicality and accessibility for respondents (Kim, Airey and Szivas, 2011; Kidd *et al.*, 2015; Au *et al*., 2015) and encourage their

engagement (Briggs, 2009; Austin, 2017). This brief interview time required is especially important given that the majority of Cannock Chase AONB park users visit the site briefly for between 0-3hrs per visit (Cannock Chase AONB, 2000; 2012). Interview questions and clarification of what was being asked to promote understanding were worded as neutrally as possible within the subjects being discussed, and were delivered neutrally by the interviewers.

Whilst all responses were subjective, interviewers actively attempted to minimise these effects by interviewing participants from different socio-demographic groups, from different locations on-site and on different days across a calendar year. Whilst non-probability convenience sampling was used, interviewers attempted to recruit participants from different activity groups to make the sample as representative of the user population as possible. From this varied sample, interviewers were able to avoid collecting responses from a homogenous source of experiences. Due to the conditions on-site and within the resource limitations of the study it was impossible to guarantee anonymity of responses, e.g. from respondents being overheard, which Greaves, Zibarras and Stride (2013) and Mtutu and Thondhlana (2015) argue is vitally important to rule out social desirability bias in responses. However, anonymity was sought where possible by interviewing individuals and those in smaller groups. Whilst this still does not fully prevent all social desirability bias in the responses, the methods used across the interviews allowed a working understanding of the positive and negative issues and reoccurring themes experienced by users to be obtained. That said, comparison of the results obtained in the present study with those from previous usage surveys show the findings to be highly similar, suggesting the interview feedback is a reliable account. This understanding of the factors at work allowed creation of the quantitative questionnaire. Whilst some data collection issues

may remain, the overall qualitative interview survey design used has been shown to yield reliable and replicable results, further suggesting its suitability for use in future studies within this topic area.

5.1.2 Discussion of Quantitative Questionnaire: Pilot Study

As the quantitative questionnaire pilot was simply used to highlight any issues to its completion, or any errors existing, and if the questionnaire was quick and easy to complete, this latter issue being of significant importance given the brief time factor aims of the study, as discussed in section 5.1.1. The findings from this short study successfully highlighted a small number of minor amendments required, which were incorporated, and also that participants did find the questionnaire quick and simple to complete. Unlike the mixture of single and group interviews discussed above, the pilot questionnaire was given only to individuals, thus providing a more anonymous atmosphere to complete it in, reducing the risk of social desirability bias (Greaves, Zibarras and Stride, 2013; Mtutu and Thondhlana, 2015). The pilot study methods used did not prevent amendments feedback from being obtained from participants across this survey, supporting the use of this method across studies, in parkland and non-parkland contexts. It should be noted for future studies that researcher openness and approachability are important factors in encouraging thorough feedback from participants. Following the amendments, the final draft questionnaire was used in the full scale quantitative study.

5.1.3 Discussion of Quantitative Questionnaire

In this study, median and modal NEP question scores indicate that non-users are more pro-environmentally friendly than park users in three of the fifteen scale questions for median, and six of the fifteen questions for mode (Table 6; Graphs 16 and 17; Appendix 4, Table 32). Appendix 4, Table 33 chi-square results for thirteen of the fifteen NEP questions had positively significant differences between responses based on user/non-user status at $p<0.05$, and six questions were positively significant at $p<0.001$. These collective NEP response results indicate that users hold less environmentally friendly attitudes. As almost all the NEP responses show statistical significance, this indicates user/non-user status to be a very strong indicator of pro-environmental attitudes. As the 701 participant sample group exceeded many recommendations for minimum sample size, as seen in Shimp and Stuart (2004), Lopez-Mosquera and Sanchez (2011) and Gabriel, Hoch and Cramer (2018), and also those at the higher end of author recommendations (Au *et al*., 2015; Kiatkawsin and Han, 2016), this finding cannot be attributed to an insufficiently small sample size, further supporting the finding that user/non-user status is a positively significant indicator of pro-environmental attitudes in this context.

However, the study by Forleo, Gagliardi and Romagnoli (2015), which examined university students' willingness to pay to support local greenspace conservation in Monte Vairano, Italy, found that there were no significant differences between users and non-users, with both groups giving highly similar answers on what they would willingly spend. It should be noted that for both groups over 75% of participants elected to pay less than 50 Euros which covered the two lowest financial answer options. These results, whilst providing some insight to this subject area, may

potentially be biased due to the highly homogenous sample group recruited, which Forleo, Gagliardi and Romagnoli acknowledge as a limitation.

In view of students coming under the remit of occupational group E (Arnett, 2016), which is the lowest income group, the respondents generally will have the least amount of disposable income available. Despite these issues, very little research exists in this subject area. From the comparison of the present study's findings with those in the literature, there may be scope for user/non-user group status as being a significant indicator of pro-environmental attitudes. However, willingness to pay is not a necessity of participants in the present study, making Forleo, Gagliardi and Romagnoli's results not fully comparable with the present study. Also, the dissimilar study sites discussed (UK and Italy), may give further support to the argument that individual study findings cannot necessarily be transferred across sites, requiring site-specific research to be conducted (Lopez-Mosquera and Sanchez, 2011; Raymond, Brown and Robinson, 2011).

This need for further site-specific research, and further research into pro-environmental attitudes of park user groups globally can be seen across studies that have highlighted users' lack of awareness and understanding as to their own on-site impacts (Yu *et al.*, 2018), and the extent of the damage they may be contributing to through poor attitudes and behaviours (Symmonds, Hammitt, and Quisenberry, 2000). The present results support these findings and give further weight to this need for further research, to help increase awareness of the scale of this issue across parks that similarly to Cannock Chase AONB have not received prior academic research, and for parks for whom research has been conducted but is out of date.

As seen for gender in Appendix 4, Tables 34 and 35, chi-square values found that nine of the fifteen NEP questions had positively significant differences between responses based on gender at $p<0.05$, and one NEP question had a positively significant difference at $p<0.001$. Median male scores are more pro-environmental in three of the fifteen NEP questions, and are identical for males and females in twelve questions. Modal male scores are more pro-environmental in five of the questions, with females more pro-environmental in one question, and identical scores for males and females in nine questions. As numbers of male and female respondents were quite similar, this finding cannot be attributed to a lack of representation in the sample of a particular gender group. These results support the finding that gender is a significant indicator of pro-environmental attitude, with males only slightly more pro-environmental, which contrasts with Ntanos *et al.*, (2018) who found gender was not a significant indicator. However, the present findings are supported by Pienaar, Lew and Wallmo (2014), and also by Bjerke, Thrane and Kleiven (2006) who found gender is a significant indicator, though with females having more pro-environmental attitudes, although this was acknowledged in comparison to male scores which were much lower. This suggests that the majority of Bjerke, Thrane and Kleiven's population sample is not pro-environmental, and in addition, no discussion was given as to what extent female scores were more pro-environmental. Whilst Bjerke, Thrane and Kleiven's (2006) do not give their specific NEP results for gender, no direct comparison can be made. Yet from their finding that females are more pro-environmental, this is supportive that population sample is not fully comparable with this study's population sample, again supporting the need for more site-specific research.

Converse to these two latter sets of NEP findings, Xiao, Dunlap and Hong (2019) found that from their Chinese sample males were slightly more pro-environmental, whilst their USA and Canadian sample identified females to be more pro-environmental. Whilst no discussion is given for these polar opposite findings, the three different countries the samples were taken from, together with Bjerke, Thrane and Kleiven's (2006) Norwegian study findings, and the present study's UK findings suggest gender to be a changeable indication variable across studies, which Bjerke, Thrane and Kleiven also argue for. A possible factor in the differences in attitudes between genders may be culturally related, based on the different countries the sample groups were from. However, Xiao and Hong (2017) argue that this is not the case, as despite their findings showing males to be more pro-environmental, the cause of this may be rooted in environmentally-related education levels, with females of their sample having less environmental knowledge than males.

These individual study findings, across countries, which discuss the significance of different social demographic variables on predicting pro-environmental attitudes, gives further weight to the need for the findings from the present study and from further research. These findings allow researchers and park managers to gain a more complete understanding of these factors, and be able to infer predictions from study sites that are similar to their own that they can examine. In terms of the present study's findings, not just on gender but across all the social demographic groups and categories examined in this section, these results can be used by researchers and park managers of other similar sites to gain some understanding of potential pro-environmental attitudes of their user groups, and make suitable predictions. The data collection methods successfully used here can easily be

replicated in further studies to determine if these predictions can be proven or disproven.

From Appendix 4, Tables 36 and 37, chi-square values identified seven of the fifteen NEP questions were positively significant differences between responses based on age at $p<0.05$, and one question had significance at $p<0.001$. These results indicate that age is a moderate indicator of pro-environmental attitudes, with older participants in categories 65-74yrs and 75-84yrs being the most pro-environmental, as well as 45-54yrs to a lesser degree, with 25-34yrs being the least environmental. However, the number of respondents for each age group was highly dissimilar, ranging from 10 respondents in the 75-84yrs category, up to 175 in the 35-44yrs category. The low sample numbers obtained for some of the age categories may have created some result bias from the homogenous samples, as has been experienced in other studies (Vartanian, 2010; Sohn *et al.*, 2011; Liaw *et al*., 2014; Hutchinson *et al.*, 2015), which may be a result of the non-probability convenience sampling method used, as opposed to a quota sample. This issue of possible result bias may also affect some of the results for occupation, which has highly varied group sizes ranging from 19 respondents in the group A category, up to 275 in the group C1 category. Similarly, this issue of possible result bias may also affect some of the results for highest academic qualification, with dissimilar group sizes ranging from 15 in category level 8, up to 200 in category level 6.

The present study has found pro-environmental attitudes to be more prevalent in older participants (Appendix 4, Table 36), with younger respondents much less pro-environmental, which was also found by Pienaar, Lew and Wallmo (2014). These findings contrast with the results found by Bjerke, Thrane and Kleiven (2006) and Liu, Ouyang, and Miao (2009) who identified that younger participants were more

pro-environmental. As discussed above, whilst these findings in the literature are specific for their study populations, their populations are not fully comparable with that of the present study. This may be explained by Xiao and Hong's (2017) discussion that participants need to have knowledge of environmental issues through education to have pro-environmental attitudes. As the present study has found older participants to be more pro-environmental, this would suggest that they have been exposed to more environmental education over time which may have influenced their attitudes. Despite Xiao and Hong's disagreement that cultural aspects may influence pro-environmental attitudes, it should be considered that individual countries may have different educational cultures, such as length of time required in compulsory education, which may impact on education levels, and thus pro-environmental attitudes.

Chi-square values identified four of the fifteen NEP questions had positively significant differences between responses based on occupation at $p<0.05$, and none were significant at $p<0.001$ (Appendix 4, Tables 38 and 39). From these results, overall NEP responses for occupation, hence level of participant income, indicate that occupation is a weak indicator of pro-environmental attitudes. The present study has found pro-environmental attitudes to be highly distributed across the categories, and not limited to either high or low earners. Categories A, B, D and E median scores are more pro-environmental, whilst occupation category C2 is less pro-environmental. Modal NEP scores indicate occupation categories D and E are more pro-environmental, and category C1 is less pro-environmental. These findings both agree and contradict the findings by Pienaar, Lew and Wallmo (2014) who found that lower income respondents had more pro-environmental attitudes, compared to their higher earning counterparts.

Conversely to this, both Liu, Ouyang, and Miao (2009) and Ntanos *et al.*, (2018) found that higher earners were more pro-environmental, although the latter of these two studies examined participants' willingness to pay for expansion of environmentally-related infrastructure, which could be explained by higher levels of disposable income. Within the present study it should be noted that group E displayed one of the highest levels of pro-environmental attitudes of the occupation variable despite being the lowest earners of the sample. This may be explained as group E contains students within its remit (Arnett, 2016). These students are likely to have been exposed to the higher levels of environmental knowledge discussed by Xiao and Hong (2017) as being necessary for individuals to have pro-environmental attitudes, just as group A individuals may have received this same exposure.

Chi-square values found that four of the fifteen NEP questions had positively significant differences between responses based on highest academic qualification at $p<0.05$, and none were significant at $p<0.001$ (Appendix 4, Tables 40 and 41). From these results, NEP question analysis for respondent occupations indicate that education is a weak indicator of pro-environmental attitudes overall, which is supported by the findings of Bjerke, Thrane and Kleiven (2006) and Ntanos *et al.*, (2018) that education is not a significant indicator of pro-environmental attitudes. The present study has found qualification category groups to be partially varied in how pro-environmental they are, with pro-environmental attitudes not completely limited to participants with higher academic qualifications. Median NEP scores indicate highest academic qualification categories Levels 4 and 8 are more pro-environmental, with category Level 2 is less environmental. Modal scores indicate qualification category Levels 7 and 8 are more pro-environmental, with category Level 3 is less environmental. As can be seen in the literature, higher pro-

environmental results have been exhibited by participants with higher education levels who have increased understanding and pro-ecological beliefs (Liu, Ouyang, and Miao, 2009; Pienaar, Lew and Wallmo, 2014), thus explaining some of the present study's results. Bjerke, Thrane and Kleiven (2006) conversely found that education level is not an indicator of pro-environmental attitudes on its own, but may be an indicator when multiple demographic variables are considered simultaneously. This finding may go towards explaining the lower attitudes exhibited by levels 5 and 6 compared to those of level 4 and Liu, Ouyang, and Miao's (2009) study results.

Chi-square values identified two of the fifteen NEP questions had positively significant differences between responses based on home postcode at $p<0.05$, and none were significant at $p<0.001$ (Appendix 4, Tables 42 and 43). From these results, overall NEP responses for participant geographic location indicate that postcodes are a very weak indicator of pro-environmental attitudes. These results are contrary to the studies by Pienaar, Lew and Wallmo (2014) and Ntanos *et al.*, (2018) which found that geographic location of residence was a significant indicator of these attitudes. Ntanos *et al.*, (2018) found that participants living in rural areas exhibited more pro-environmental attitudes, as they were more appreciative of these greenspaces. Bjerke, Thrane and Kleiven (2006) also found that geographic location was a significant indicator but contrastingly urban dwellers were more pro-environmental.

Whilst there is little statistical significance, the present study has found pro-environmental attitude scores to be slightly distributed across the categories, and not fully limited to particular postcodes. Of the postcodes that received ten or more respondents Median NEP scores indicate postcodes B, ST, WS and WV are more pro-environmental, and LE and TF are less pro-environmental. Modal NEP scores

indicate postcodes ST, WS and WV are more pro-environmental, and LE and TF are less pro-environmental. Whilst Bjerke, Thrane and Kleiven's (2006) findings do go towards supporting the findings for ST and WS, they do not support the results for TF and LE, as the present study's respondents to these seven postcodes live within urban areas.

Visit frequency median and modal scores are largely similar across categories. Of these the mid-range frequencies of 2/3 times per week to once every three months are more pro-environmental, and the very high and very low frequencies are less pro-environmental. Chi-square results indicate five of the fifteen NEP questions had positively significant differences between responses based on visit frequency at $p<0.05$, and was significant at $p<0.001$ (Appendix 4, Tables 44 and 45). Due to the low levels of significance, this indicates visit frequency is a weak to moderate indicator of pro-environmental attitudes. These results are in opposition to the findings of Ntanos *et al.* (2018); whilst their study did not specifically test visit frequency as one of their variables, Ntanos *et al.* argue that geographical location and visit frequency are interlinked, as the closer participants of their study were to their study site, the more often they visited it. These results may be to some small extent supported by the findings of Forleo, Gagliardi and Romagnoli (2015), that whilst their study examined user and non-user groups, user group responses may be linked to visit frequency as they more generally encompass the finer detail found in visit frequency results. This study found that site visitation was not a significant indicator of pro-environmental attitudes, similar to the findings of the present study. Although, as discussed earlier, the results from Forleo, Gagliardi and Romagnoli's (2015) study run a high risk of bias, giving further weight to the non-transferability of

results argument (Lopez-Mosquera and Sanchez, 2011; Raymond, Brown and Robinson, 2011).

Of the three modes of transport responses that received ten or more respondents, median and modal scores indicate cyclists and walkers/runners are more pro-environmental, with car users being less pro-environmental. Chi-square values identified three of the fifteen NEP questions had positively significant differences between responses based on mode of transport at $p<0.05$, and one was significant at $p<0.001$(Appendix 4, Tables 46 and 47). These indicate that mode of transport is a weak indicator of pro-environmental attitudes. Very little research exists on the link between pro-environmental attitudes and modes of transport, however, from the qualitative data obtained from questionnaire open questions on positive and negative issues of Cannock Chase AONB, it has been raised that there is a deficiency in the public transport offer for the site. This reality is evident given that of the 701 participants, 612 travelled to the site by a small private vehicle, whilst 5 travelled via bus/minibus/motorhome. Whilst bus routes do cover some suburban areas around the site and some A-roads, the majority of main roads running through and around the site are not bus routes. This is an issue not only for the present study in that it prevents a reliable comparison of transport modes used, but it prevents accessibility to the site for those who do not have access to private transport.

Across activity group categories, those that received ten or more respondents are largely similar in their median and modal scores. These scores indicate that cyclists, walkers and those employed on site are more pro-environmental, whilst the GoApe category is less pro-environmental (Appendix 4, Tables 48 and 49). This is partially supported by median and modal values for user group type, which found employees are more pro-environmental, visitors are less pro-environmental, with residents

midway between. Chi-square values show three of the fifteen NEP questions had positively significant differences between responses based on activity at $p<0.05$, and one was significant at $p<0.001$ (Appendix 4, Tables 50 and 51). These results indicate that activity is a weak indicator of pro-environmental attitudes, as supported by Philips, Szuster and Needham's (2019) study that compared tourist activity groups to Molokini Shoal Marine Life Conservation District, Hawaii, USA. Philips, Szuster and Needham found that there were no significant differences in participant environmental-related values. As discussed in section 2.1, values have been frequently used interchangeably with attitudes (Franssen and Garling, 1999; Arnocky, Stroink and DeCicco, 2007). Therefore, the value findings of Philips, Szuster and Needham (2019) could be argued to cover the term attitudes for the context of this present study, as they acknowledge that values and attitudes are closely linked. Whilst their study site is partially dissimilar to Cannock Chase AONB in that it is a marine area, the study does examine the same issues of possible user activity group conflicts in terms of pro-environmentalism, within a natural space that is suffering from human created damage issues.

Overall, from the analyses performed on the variables discussed above, it can be seen that there is a contrast of what demographic factors are significant indicators of pro-environmental attitudes, that user/non-user status is a very strong indicator, whilst postcode is a very weak indicator. The literature has also shown many contrasting views as to which of these variables are significant in their individual study-specific populations' samples, which this present study has also shown through agreement and also disagreement with the findings from these other studies. In contrast to the findings of the present study and the existing studies discussed above, other studies have found that socio-demographic variables are insignificant in

predicting attitudes (Chang *et al*., 2016; Yi, 2019), although Chang *et al*. (2016) acknowledge their results may partially be due to pro-environmental behaviours of participants being mandatory from Government policy. These collective findings suggest that variable significance is specific to individual study subjects and their unique populations, and also that individual study findings cannot be automatically applied to other studies and their respective populations necessitating much more research on a site-specific basis (Lopez-Mosquera and Sanchez, 2011; Raymond, Brown and Robinson, 2011).

The results of the present study can be used by researchers and park managers of other comparable sites to gain some understanding of potential pro-environmental attitudes of their user groups, and make suitable predictions. Such comparable sites can immediately include other AONB's due to legislative protections in place (Cannock Chase AONB, 2009; 2010; 2019), and smaller parkland areas, given the small size of Cannock Chase, for the immediate transferability of these results obtained here. These results can also be used as a more general guide in predictive applications across all non-comparable parkland sites. However, researchers and site mangers of comparable and non-comparable sites must remain aware of non-transferability issues when using these results (Lopez-Mosquera and Sanchez, 2011; Fornara *et al.*, 2015; Kiatkawsin and Han, 2016), and take steps to determine their own site's factual attitudinal results, beyond this predictive guide. The data collection methods successfully used here can easily be replicated in further studies to enable researchers and managers to attain these factual results.

5.2 Discussion of Phase 2 of Study

The aims of Phase 2 are to improve the quantitative baseline results of Cannock Chase AONB users identified in Phase 1. These will be examined through the creation and delivery of a new, site-specific, experimental educational intervention containing a combination of positive and negative EAs, and tested over a six month longitudinal study. The present section will examine the literature, methods and results surrounding this.

5.2.1 Discussion of Pre-Intervention Content Analysis

In this study, a qualitative internet-based content analysis was first used to determine the common areas of content and format used in comparative materials to improve visitor pro-environmental attitudes. This was completed with the view to these attitudes directly influencing on-site behaviours, and all within comparable parkland locations to that of Cannock Chase AONB. In total 32 poster and leaflet materials were collected from 38 sites across mainland UK, from only official AONB websites and/or local government websites, to ensure the analysis was based on actual interventions used by these organisations to influence user groups. Content analysis of the materials was separated into positive, neutral, negative, and a combination of negative and positive message types, and analysed for background design, main content and design of their main content.

This study method successfully identified a number of frequently used content points and delivery formats for the specific message type being communicated, which could be matched to the intervention content aims of the present study. As a positive and

negative combination message formed in the aims of the study, and later used in the present study's intervention, particular emphasis was placed on these multiple content and format elements. The content analysis found that positive messages were delivered using light and/or bright colours, humour, positive framing of their textual language and matching imagery to communicate their information. Negative messages used negatively framed language and matching imagery to support the message they conveyed, with use of either dark or light colours depending upon the nature of the subject. Combination negative and positive messages clearly contrasted their information into positive and negative language and imagery sections. Combination messages presented their two message types separately using bright colours for positive content and dark colours for negative content, whilst portraying both positives and negatives side by side at all times.

Very few materials up on which this content analysis was conducted were publically available, which on the outset may limit the reliability of the results. Studies are ultimately limited to the number of relevant and existing materials; factors which are out of the researcher's control. This explains the high variation seen between studies, which as discussed in section 2.2.4 has been shown to range from 50 items (Banerjee and Greene, 2013) to 503 items (Afzalan and Sanchez, 2017). However, despite the present study having access to only 32 items, the message types used incorporate a very select number of format and content designs. These 32 items have linked deeper colours and more harshly framed language to delivering a negative message, with paler colours and more upbeat language used to deliver a positive message. Where a positive and negative combination has been used, these two overall delivery methods are overtly contrasted to emphasise the difference between the two messages.

Graneheim, Lindgren and Lundman (2017) note that an issue with content analyses is that researchers may limit their findings to general and basic descriptions. However, Graneheim, Lindgren and Lundman do not specify what would form this more limited analysis, or what common omissions should be included. They also suggest that how researchers interpret the content and abstract the ideas from the setting of the message is important to ensure the analysis is a credible account. As the present study is specifically looking at the content and format styles used to deliver specific messages in educational poster interventions, these areas have been examined closely and consistently throughout the 32 items used, to ensure a holistic and thorough analysis. The methods used in this study have been heavily informed by the content analyses approaches discussed in published research (Huhmann and Brotherton, 1997; Jenner *et al.*, 2005; Mo and Coulson, 2008; Rae, Simon and Braden, 2010; Banerjee and Greene, 2013; Afzalan and Sanchez, 2017). Overall, the present study has attempted to ensure best practice is used throughout, as supported by the literature reviews in sections 2.2.1, 2.2.3, and sections 2.2.3.1 to 2.2.3.5.

Following the methods used to obtain a representative full sample of comparable materials, these content analysis results have immediate and direct transferability to future related environmental studies on AONB sites, allowing the findings in Tables 7, 8 and 9, and summarily discussed in section 4.2.1 to be used to inform future poster intervention development on these sites. More generally, these findings can help inform intervention content and development in non-poster/non-leaflet formats, although specific design theory would need to be sought for other mediums. These findings can further be used generally across future parkland and non-parkland studies, as design theory used to inform the present content analysis is applicable

across subjects (Briggs, 2009; DeSilets, 2010; Hubenthal, O'Brien and Taber, 2011; Austin, 2017; Yang and Hsu, 2017).

5.2.2 Discussion of Intervention Poster Qualitative Questionnaire Pilot and Full Final Copy Questionnaire Pilot Studies

As with section 5.1.2, the intervention poster and qualitative questionnaire pilot was simply used to highlight any issues to how easily the poster is understood by respondents or any errors it may contain. Likewise so with the questionnaire, if it was quick and easy to complete, or if it contained any errors, although as the questionnaire was the same as used in Phase 1, no errors were anticipated or fed back by participants. A quick completion time for participation was of significant importance given the brief time factor aims of the study, as discussed in section 5.1.1 (Kim, Airey and Szivas, 2011; Kidd *et al.*, 2015; Au *et al*., 2015).

From the participant feedback on the eight possible intervention poster designs, one design was found to be the most effective in delivering the messages in terms of both design format and content. The poster chosen was in landscape orientation, as is most frequently used in the majority of public facing posters published by AONB's as identified in Table 7, and featuring six colour images with text labels. Of these images, three contained negative themed content and three had positive content, alongside a short question style title. Feedback from participants of the pilot study identified what content, quantity of content and design format items were most effective in delivering the messages, and some minor issues which were subsequently amended. Amendments included changing the two colour background

image for a block background colour of grey for the negative left side message, with green used for the right side positive message, which was less distracting. Also, feedback highlighted the comparison pairing of the positive side commonwealth commemorative cemetery, which is man-made, to be changed for a nature based image.

As with the Phase 1 quantitative questionnaire, the pilot intervention and questionnaire were given only to individuals, enabling a more anonymous atmosphere for it to be completed in, reducing the risk of social desirability bias discussed by Greaves, Zibarras and Stride (2013) and Mtutu and Thondhlana (2015). Following the amendments, the final draft questionnaire was used in the full scale quantitative study.

Consistent with the discussion in section 5.1.2, the pilot study methods used did not prevent amendments feedback from being obtained from participants across this survey, and yielded high quality responses that enabled improvement of intervention content and design to expand participant accessibility and engagement. These results support the use of these methods across studies, in parkland and non-parkland contexts, again with inclusion of researcher openness and approachability to encourage thorough feedback from participants.

5.2.3 Discussion of Intervention Poster Questionnaire: Pilot Study Mood Scale

Similarly to sections 5.1.2 and 5.2.2, the BRUMS mood scale pilot was simply used to highlight how understandable it was, how quick and easy the scale and experimental items were to complete, and any errors it may contain for correction. As

with the previous pilot studies used here, and as discussed in section 2.2.5.4, the BRUMS mood scale also needs to have a quick completion time to be consistent with the intervention and questionnaire, which Terry, Lim and Parsons-Smith (2013) argue it to possess. Even with the additional ten experimental items, no negative participant feedback was received about completion time, supporting the scales ability for speedy completion.

As discussed in section 4.2.3, participants largely felt these emotions to a small degree if at all, in the single day pilot study (Table 12), with largely similar results obtained from the two week longitudinal pilot study (Table 13), indicating that the BRUMS scale was understandable to individuals. Concerning the emotional appeals (EAs) used in the intervention and recorded in the mood scale, disgust was particularly felt during the qualitative pilot (Table 12), though not felt in the final longitudinal pilot study (Table 13). The initial pilot results support Shimp and Stuart's (2004) argument that photographic depictions of animal waste can influence a disgust emotional response in participants. As part of the positive and negative EAs combination used, Joy and Pride (Table 13) received high scores that they were felt by participants.

Consistent with the discussions in section 5.1.2 and 5.2.2, the mood scale pilot study methods used did not prevent amendments feedback from being obtained from participants across this survey, and further supported the amendments made from feedback gained in section 5.2.2, which were not repeated. These results further support the use of this method across studies, in parkland and non-parkland contexts, again with inclusion of researcher openness and approachability to encourage thorough feedback from participants for the improved quality of the subsequent quantitative intervention.

5.2.4 Discussion of Intervention Poster and Questionnaire Results

Examination of post-intervention questionnaire results from the 6 month longitudinal study revealed seven NEP questions received improved median and mode values from baseline to the first post-intervention questionnaire, with eight median and mode values equalling baseline (Table 14, Graphs 54 and 55). Almost all median values of the 2 month questionnaire revert to baseline levels, with two questions more pro-environmental than baseline. Mode values of the 2 month questionnaire revert to baseline levels in ten NEP questions, become less pro-environmental than baseline in one question, and are more pro-environmental than baseline in four questions. Overall, NEP values became worse at the two month follow-up questionnaire where the participants were not given the poster to look at. The majority median values of the 6 month questionnaire revert to baseline levels, with one becoming more pro-environmental than baseline. Mode values of the 6 month questionnaire revert to baseline levels in six NEP questions, become less pro-environmental than baseline in two questions, and are more pro-environmental than baseline in seven questions. Overall, NEP values partially improved at the six month follow-up questionnaire where the participants were not given the poster to look at.

Overall comparison of the baseline and collective post-intervention results has identified that there are twelve NEP questions that are statistically significant at $p<0.05$, and nine are significant at $p<0.001$. This indicates that the intervention was a very strong indicator of pro-environmental attitudes and succeeded in improving participant attitudes. However, these latter improvements at the 6 months point are only in comparison to the lowest attitude results recorded, at the 2 month follow-up. These initial questionnaire results are comparable to the majority of existing studies that recorded participant attitudinal improvements after delivery of the intervention

(Liaw *et al*., 2014; Au *et al*., 2015; Kidd *et al.*, 2015). These findings collectively provide support for the argument that knowledge, developed from past experiences including education, is a strongly significant predictor of attitudes and end behaviours (Kaiser, Wolfing and Fuhrer, 1999; Liaw *et al*., 2014; Au *et al*., 2015).

Overall analysis of the longitudinal data for socio-demographic variables and site user characteristics found that all displayed positively significant results (Appendix 11). Whilst NEP results for only gender displayed a weak significance for predicting pro-environmental attitudes, all other variable and characteristic NEP results displayed between moderately strong to very strongly significances for predicting pro-environmental attitudes. As was found in the Phase 1 quantitative questionnaire and discussed in section 5.1.3, comparison of results and significance values found in the literature contrast greatly, between existing studies and within the present study. One possible contributing factor for the contrasts between Phase 1 and 2 results may be the time disparity between these surveys, as Phase 1 was completed from 2012 to 2016, with Phase 2 completed from 2016 to 2019. These two separate periods of time allow for a number of changes to occur across the user population of Cannock Chase AONB. Whilst the general methods used in Phases 1 and 2 can be replicated in other studies, albeit to varying levels of detail, these future studies may need to restrict the total time period over which their study takes place to avoid time period disparities potentially creating such contrasts, i.e. through legislative changes that affect individuals in their daily lives, or the potential for larger scale population turnover.

In the present study, Phase 1 results found gender to have a strong predictive ability, with males having slightly higher median and modal scores, and thus slightly more pro-environmental attitudes, with gender overall being a significant predictor of pro-

environmental attitudes. However, this is in contrast to the Phase 2 results that found gender to be a weak attitudinal predictor, with females having slightly more pro-environmental attitudes post-intervention. These Phase 2 findings are supported by Bjerke, Thrane and Kleiven (2006), Pienaar, Lew and Wallmo (2014), and also by the USA and Canadian survey population in the study by Xiao, Dunlap and Hong (2019). Similar contrasts were also found in other demographic groups. Phase 1 results found age to have a moderate predictive ability, with older participants being more pro-environmental than younger respondents, whilst Phase 2 results indicated that age was a moderately strong indicator of pro-environmental attitudes. However, the broad terms the data fell into in Phase 1 is not so for Phase 2, as categories from both the older and younger ends of the spectrum of categories were pro-environmental and poorly environmental. These highly mixed results simultaneously can both support and contradict the findings by Pienaar, Lew and Wallmo (2014) that older participants are more pro-environmental. The present Phase 2 results also both support and contradict the findings by Bjerke, Thrane and Kleiven (2006) and Liu, Ouyang, and Miao (2009), that younger participants are more pro-environmental.

Whilst data for gender was not affected by sample group homogeneity, Phase 2 data for age is affected by some categories having much smaller sample sizes than others, which again may put some results at a higher risk of bias (Vartanian, 2010; Sohn *et al.*, 2011; Liaw *et al*., 2014; Hutchinson *et al.*, 2015). Phase 2 data was collected using a combination of purposive and random sampling, and extended by the snowballing technique. This issue of some potential bias occurring, as highlighted as a risk in sections 3.2.3, 3.2.4, 3.3.4 and 3.3.5, may be due to employment of these sampling methods, as opposed to a quota sample method.

This issue may also partially exist with other Phase 2 socio-demographic variables including occupation, highest qualification, user group type, activity group, visit frequency, postcode and particularly with mode of transport.

Further contrasts can be also be seen between Phase 1 results for occupation which have a weak predictive ability for pro-environmental attitudes, with groups D and E being more pro-environmental, as are A and B. However, Phase 2 results indicated that occupation is a strong indicator of these attitudes, with categories B and C1 shown to be more pro-environmental. These opposing results also both simultaneously support and contradict the findings by Pienaar, Lew and Wallmo (2014) who found that lower income respondents had more pro-environmental attitudes. Similarly again to the results of Liu, Ouyang, and Miao (2009) and Ntanos *et al.*, (2018) who found that higher earners were more pro-environmental. This pattern of contrasting results between baseline data and post-intervention data in the present study can also be seen in highest qualifications, postcode area, visit frequency, mode of transportation, activity group and user group type socio-demographic variables. This pattern of both supportive and contrasting results can be seen between the present study and the findings of existing studies, as shown in sections 4.1.3 and 4.2.4, and discussed in section 5.1.3.

These contrasting findings between the present study and existing studies may be explained in part by author recommendations that interventions are site-specific, and cannot automatically be transferred between sites as efficacy cannot be guaranteed (Lopez-Mosquera and Sanchez, 2011; Fornara *et al.*, 2015; Kiatkawsin and Han, 2016). In addition to the frequently highlighted intervention non-transferability issue in the literature, and a possible root cause for this, is the issue of population and population sample comparability. It has been argued that cultural differences

between populations should not negatively affect pro-environmental attitude, or the interventional methods by which attitudes are influenced (Xiao and Hong, 2017). However, this conclusion in the literature has been drawn based on a relatively small population sample from one country, and compared with results from older studies from two other countries. Whilst this is a good indication of potential efficacy in attitudinal change that could be achieved by using certain intervention methods, content and format, the study uses a too small range of different populations for this recommendation to be used as a general rule for all interventions going forward. This issue has already been seen in the earlier discussion of population sample differences between the present study and Bjerke, Thrane and Kleiven's (2006) Norwegian sample. This non-comparability issue may again be most likely between the present study and others, i.e. Au *et al*.'s (2015) West Coast, USA sample, Kidd *et al.*'s (2015) East Coast, USA sample, and Schwarzer *et al.*'s (2016) Italy, Spain and Greece samples, among others. Whilst previous studies have given different levels of discussion as to the content of their interventions, no visual images have been given with which to assess the messages being given and the precise format methods for comparison here (Au *et al*., 2015; Schwarzer *et al*., 2016). This again necessitates more investigation into best practice into specific content and format.

Result contrasts may also be explained by Xiao and Hong's (2017) argument that increased education can improve attitudes, as attempted and to some extent achieved in the present intervention. However, Xiao and Hong acknowledge that the significant increases seen in their study may have been due to some socio-demographic groups in their intervention population having previously received less environmental education, and so having a less developed pro-environmental attitude base. This may be an important factor in assessing the Phase 2 results of the

present study for intervention efficacy, of 1) determining how much environmental education have participants received prior to the intervention. Further to this is the question of 2) assessing how much attention did participants pay to the intervention whilst completing it, and if it was treated seriously, or, could the intervention have been treated as a tick-box exercise in participants' email Inboxes, with no serious participation given. Both of these questions are vitally important to intervention development efficacy in the present study and beyond it, and which have not been examined in the questionnaire format used here. Despite these areas for further research not examined here, the large scale data collection carried out within Phase 1 has provided the present study with a very sizable control group sample. This extensive control group is of higher representational value than many other studies, where studies have either used a small control group, or in most cases none at all, as seen in Amonini, Pettigrew and Clayforth (2014), Hutchinson *et al*. (2015) and Schwarzer *et al.* (2016). This issue which published studies have noted as a serious drawback to the validity of their findings has been avoided here, and has given the present study's results full validity and directly supports the new knowledge it has contributed to the field. The methods used to obtain the control group data can be transferred to other studies across parkland and non-parkland future studies, as these are general data collection techniques and not limited to environmental or parkland subjects.

In addition to these areas not covered here, the present study has only collected results on the knowledge-attitude/behavioural intentions link, and not on actual behaviours witnessed on-site. Therefore, the present study has not been able to categorically provide support, or argue against the cognitive-behavioural link suggested in the Theory of Planned Behaviour model by Ajzen (1985). This model

argues that attitudes, via behavioural intentions, directly influence behaviours. The middle linking term behavioural intentions has been used interchangeably with attitudes (Franssen and Garling, 1999) and as being a basic choice that is part of the attitudinal process (Previte, Russell-Bennett and Parkinson, 2015), which suggests that the term may be one and the same as attitudes. As seen in the literature, many studies have not been able to quantify changes to behaviour resulting from attitudinal change they have effected (Lopez-Mosquera and Sanchez, 2011; Kim, Airey and Szivas, 2011; Fornara *et al.*, 2015; Kiatkawsin and Han, 2016). Whilst the intervention methods can be directly transferred to other comparable parkland sites to improve attitudes, and more generally used to inform non-comparable studies, future studies would need to identify methods by which behavioural data can be collected to identify TPB accuracy.

In line with the theoretical model framework used, studies discussed above have instead given recommendations of what behaviours are most likely to occur based on their attitudinal/behavioural intention results. In the case of the present study's recommendations, results indicate that delivery of a brief poster intervention was very strongly effective in creating positive significant pro-environmental attitude change immediately after delivery of the educational material. However, the intervention was weakly to moderately effective in creating attitudinal change, based on memory, two months after participants saw the poster. Conversely, attitudes based on memory of the poster did again improve six months after delivery, indicating the poster to have a moderate to strong efficacy at this point. Whilst the attitudinal resurgence at the six month point is beneficial, it is in contrast with the decline seen from the high pro-environmental day one results to the two month point low pro-environmental attitude results which themselves suggest that the poster

messages may have been forgotten. Whilst the present study has not investigated the resurgence seen, this finding would merit further research in future studies to determine its precise cause, such as if the poster did have a lasting effect on participant attitudes. Alternatively, to determine if participants did not base their six month responses on memory as requested, and re-viewed the poster for their questionnaire answers. As discussed in section 2.2.1, the longitudinal method used in the present study has cross-subject applicability (Au *et al*., 2015; Schwarzer *et al.*, 2016) and is not limited to environmental parkland studies. However, the method used does not allow for collection and analysis of reasons why overall the longitudinal results improved, became worse, and then improved again at the respective 0 month, 2 months and 6 months questionnaire points, which future studies would need to include.

In terms of efficacy across socio-demographic variables, it was found that the intervention was most strongly effective for the highest academic qualification, where participants with some of the higher qualification levels exhibited the most pro-environmental attitude change. The other category that the intervention had the strongest efficacy amongst were activity groups. Here, those participating in nature, photography and running activities on site were most pro-environmental. Variables that were less strongly influenced by the intervention were age and postcode, which found that 19-21yrs and 45-54yrs categories and participants that live between 1.5 to 60km from the site had the most pro-environmental attitudes. The intervention had the weakest influence on gender. The attitudes of these individual group categories were all positively and significantly influenced by the intervention, with females slightly more pro-environmental. Some of the results seen may be explained by commonalities, or links amongst the variables, i.e. highest qualification along with

certain occupation levels and age groups. However, it should be highlighted that some of the more pro-environmental categories received much higher respondent numbers, such as the 45-54yrs age category, compared to others. Alongside this, the higher qualification categories not only have the most pro-environmental attitudes but large numbers of respondents. Also, middle income occupation categories which are the most environmental have been recorded in large numbers in the intervention. This combination of results indicate that many of the participants may be alike, i.e. recent degree or degree-level graduates that are now in employment. This may further support Xiao and Hong's (2017) argument that increased environmental education improves pro-environmental attitudes and embeds them in participants' everyday lifestyles. As can be seen in the results, it is likely that these participants may have received this increased environmental education in their educational careers, which is likely to have been embedded through UK environmental policy and legislative impacts in their employment careers (HM Government, 2015; HM Government and Skidmore, 2019). Cross-subject future studies will be able to replicate the generic statistical analyses used to determine the overall results and general trends, but would need to be aware of the exact nature of their individual data to determine if these or other statistical analyses would be appropriate.

Whilst legislation may have helped improve some participant pro-environmental attitudes, legislation has also had an inadvertent detrimental effect on the present study. General Data Protection Regulation (GDPR) (ICO, 2019) has impacted on the number of responses obtained particularly in the later months of the primary data collection, with feedback received from a number of individuals/organisations who have declined to participate to avoid being in breach of this new legislation or to

avoid the risk of being in breach of it. A further issue that may prevent individuals and organisations participating may be from uncertainty and wariness as to the origin of the unfamiliar email invites used in the present study, which contain the web links to the poster and questionnaires. This issue is in light of the many well publicised global ransom ware attacks (BBC, 2017) and frequent phishing and scam emails that email users regularly receive on a daily basis globally. The researcher also found that some organisations own email facilities refused to accept external correspondence that contained web links, further limiting participation in the study, reducing response numbers from which the analysis is derived, and reducing how representative the sample is of the user population.

In addition to these methodological problems, there may also be reasons preventing invitees from participating at all. Feedback was received in this study from invitees declining to participate as they felt they did not qualify, having not visited the site in the past year which was a requirement in the email's introduction information; this stipulation thus acted in some cases as a deterrent, limiting potential responses. Another preventing factor particularly in the case of contacting organisations/groups with many members is the decision of certain members of staff who act as a form of gatekeeper to these participants. Feedback from a number of these gatekeeper-staff have declined participation on behalf of everyone in their organisation/group as they do not believe any in their membership visits Cannock Chase. This feedback is only their personal opinion and not necessarily a correct assessment of all individuals' actual leisure choices, nor is it necessarily a correct assessment of the individuals' own opinions on if they would like to participate or not.

However, despite these issues, there are factors within the control of the researcher that can be amended to maximise participation, i.e. questionnaire design. Feedback

received from a number of participants highlighted the length of the questionnaire overall as a preventative, and the length of the final BRUMs related question as having too many emotions to have to rate. Feedback also identified that many questions were mandatory in requiring a response, which participants in some cases were unsure how to answer certain questions so cancelled participation in the entire questionnaire instead. From these results, the questionnaire and mood scale used in this study potentially may need some amendment to reduce the number of questions and mood adjectives being asked to provide increased participation in future studies. This may easily be done by removing supplementary site-specific questions from the questionnaire, and may be accomplished through removal of the experimental adjectives from the BRUMS, which can equally apply across subject areas, not just to environmental studies. However, use of experimental mood adjectives would be dependent on individual study needs, particularly if certain EAs must be examined for attitudinal improvement efficacy.

Some participants fed back that they cancelled their follow-up questionnaires participation as they could not see the poster. Whilst this latter point was one of the main intervention design features being tested, in determining how effective the poster was at improving pro-environmental attitudes over specific time spans. Information about the stages of the intervention and questionnaires was communicated to participants in the wording of the email introduction provided. This feedback indicates that introductory information provided may need to be more explicit in explaining what is being delivered to participants and what they must do to fully participate, to prevent confusion and further questionnaire non-participation.

It can be seen in the results, the intervention, questionnaire and BRUMS scale were emailed to 2237 individuals and groups initially, decreasing to 2215 emails sent out

at the two month follow-up point, and decreasing further to 2203 emails sent at the six month final follow-up point. In total, 640 responses were collected: 234 from the initial questionnaire, 196 from the first follow-up and 210 from the final follow-up questionnaire. These represent response rates of 10.46% from the initial questionnaire, 8.85% from the first follow-up and 9.53% for the final follow-up, which are quite low in comparison to rates recorded in existing surveys of approximately 60% and above (Dunlap *et al*., 2000; Safruk *et al*., 2017). The issues discussed above having likely contributed to these low rates, alongside a number of other common factors outside the control of the researcher that create drop-out from the study before it is completed. These common factors include invites to organisations/individuals where staff have left their job/retired, have insufficient available time/urgent commitments, change of email address with researcher not sent new contact details/unable to find new email address, and death of participants, amongst other factors.

To try and address some of these issues, future studies utilising an email invitation approach to educational interventions may increase response rates through researchers contacting individuals/organisations with a form of pre-survey contact. This initial contact, i.e. a phone call/plain email that does not contain an unknown web link to serve as a first point of enquiry for if they would be interested in participating, followed by the web link invite email if individuals/organisations consent to participate. However much more research is needed to determine what methods yield optimal response rates in online data collection techniques.

Despite these issues encountered, a number of the methodologies used in the present study's intervention have been used successfully as shown in the results, contributing new knowledge. The poster format used was found to be an effective

method in quickly delivering the positive and negative messages, and the emotional appeals used. This method is frequently seen across subjects in the literature (Liaw *et al.*, 2014; Jimenez *et al*., 2014; Au *et al*., 2015; Mtutu and Thondhlana, 2015; Kidd *et al.*, 2015), with other studies recommending its use (Sohn *et al*., 2011; Hutchinson *et al.*, 2015). This education method was shown to successfully influence positive pro-environmental attitude change, as seen in section 4.2.4 results, by use of a small number of clear images and supplemented by concise text to provide accessibility of the messages to all (Kim, Airey and Szivas, 2011). During pilot study testing of the poster only minor issues for some content and format elements were fed back by participants, with no serious issues raised. Whilst educational interventions are largely found to be beneficial in improving pro-environmental attitudes, Sohn *et al.* (2011) found that attitudes were negatively affected by their intervention. However, this was acknowledged to be a result of the overly-long and demanding delivery method used. The present study has avoided this issue by use of the experimental poster which has offered a very short and concise method to deliver the messages quickly without being time consuming, as supported by the literature, where short interventions have been used to positive effect (Liaw *et al.*, 2014; Au *et al*., 2015; Kidd *et al.*, 2015). These results support the use of the poster intervention method, which has cross-subject transferability, and is easily replicable in future studies though must contain study-specific content.

The present study has provided further knowledge to this area of experimental poster intervention and content research, as called for by Briggs (2009) and DeSilets (2010), to also examine maximisation of intervention efficacy through development and analysis of site-specific methods (Lopez-Mosquera and Sanchez, 2011; Raymond, Brown and Robinson, 2011). The present study provides more knowledge

on the combination use of positive and negative EAs as called for by many authors (Huhmann and Brotherton, 1997; Shimp and Stuart, 2004; Roozen, 2013; Kruger *et al.*, 2015; Previte, Russell-Bennett and Parkinson, 2015; Septianto and Tjiptono, 2019), and discussed further in section 5.2.5.

The beneficial results seen here and attributed to the use of EAs, as measured using the BRUMS mood scale, highlight their importance towards attitudinal change. These EAs have been shown to trigger attitudinal improvements when participants are shown images of the site damages occurring. This suggests repeated EA use, together with a more frequent intervention delivery schedule, may prompt user groups of the potential damage issues that can happen and remind them of the improved attitudes and behaviours urgently needed to aid environmental protection. However, there are some gaps in the literature that the present study has not examined, including ethnicity and disability. Likewise, more research has been called for to determine any differences in pro-environmental attitudes that exist amongst the categories of the disability variable, and also into development of fully accessible intervention methods that include all categories in this variable (Lovelock, 2010).

The present study has provided further research and knowledge into the use of an electronic-only delivery method for the intervention, as called for in the literature (Au *et al*., 2015; Kidd *et al*., 2015). Whilst no specific pilot study was run for the online-only delivery of the intervention and questionnaire, the partial electronic delivery of the Phase 1 quantitative questionnaire was both found to be an effective delivery method in obtaining participant responses, and it did not receive any feedback highlighting serious issues present. Identical to the Phase 2 electronic-only delivery method, it was again found to be an effective method in obtaining participant responses (see section 4.2.4 results), with no feedback received of any serious

issues to participation. Despite the present study not simultaneously using an in-person delivery method to compare with the electronic delivery used as examined in the literature, the results found here support the findings of Au *et al*. (2015) that an online method is effective in influencing attitudinal change. Given the cross-subject use of electronic delivery seen in the literature, and supported by the present results, this intervention and questionnaire delivery method is suitable for use across subjects, though some amendments may be required as discussed earlier to maximise participation.

As discussed earlier surrounding the use of a poster format, accessibility has been further improved by use of the electronic method. This has allowed more site users to participate in the study who may not be able to access the park easily, or who may not otherwise have been able to participate, which for some may be due to time constraints, or disability related as identified by Lovelock (2010). The electronic format has allowed the researcher to reach a larger sample of the total site user population, including infrequent visitors, and those that live further away from the park. Despite the benefits of electronic interventions in improving population sample representation, the opposite may also be true, to an extent, in that participants who are not online, or who have limited access to this, may be excluded from the outset, as argued by Lovelock (2010) and Au *et al*. (2015). Whilst this may likely have occurred in the present study, the study has attempted to maximise accessibility within this method. This has been achieved by reducing text and distracting/confusing graphics in the poster design, and using large clear images that clearly show certain positive and negative messages, and by using a broad sample from the population. The present study has taken guidance in its own design from other existing AONB posters and leaflets that have been delivered to the public, to

create a comparable intervention for Cannock Chase AONB. This potential issue over accessibility may further be minimised by the increasing take up of internet usage by individuals over recent years (ONS, 2015; ONS, 2019c), together with further improvements to accessibility through growing take up of smartphone use and usage rate rises across age groups, and across the UK (Ofcom, 2015; Ofcom, 2018). These collective issues discussed above fulfilling Objective two of Aim three.

5.2.5 Discussion of BRUMS Mood Scale

Overall analysis of Cronbach Alpha results for the original BRUMS mood scale for the entire longitudinal study indicate a very strong internal consistency of 0.946, where values closer to 0 have weak internal consistency and values closer to 1 have strong internal consistency. The Anger subscale also exhibited a very strong internal consistency of 0.914, with response data for the other five subscales having strong internal consistencies of between 0.849 to 0.890 (Table 16). Overall analysis of Cronbach Alpha results for the ten experimental adjective items for the entire longitudinal study indicate a strong internal consistency of 0.830. Analysis of the original BRUMS mood scale, plus the ten experimental adjective items for the entire longitudinal study indicate a very strong internal consistency of 0.955 (Table 16), which is higher than the internal consistency achieved by the original BRUMS scale alone.

Comparison of Cronbach Alpha results for the individual internal consistencies across the three questionnaires for the original BRUMS mood scale has shown internal consistencies of 0.938, 0.949 and 0.951 for the first, second and third questionnaires respectively (Tables 17, 18 and 19). Comparison of Cronbach Alpha

results for the individual internal consistencies across the three questionnaires for the original BRUMS mood scale plus ten experimental items has shown internal consistencies of 0.951, 0.959 and 0.956 for the first, second and third questionnaires respectively (Tables 21, 22 and 23).

BRUMS internal consistency results are consistent with those found by Antunes *et al*. (2016), Brandt *et al*. (2016) and some found by Neves *et al*. (2017), and exceeded the results found by Moyle (2005), Zhang *et al*. (2014) and some found by Neves *et al*. (2017). This gives both the original scale, and the original scale plus ten experimental items good internal consistency. As these internal consistencies were maintained across the six month study, this further gives both the original scale, and the original scale plus ten experimental items good reliability. Factor analysis verified that the six BRUMS factors accounted for 69.09% of the variance, which is comparable with published research (Moyle, 2005; Brandt *et al*., 2016). These mood scale results provide further validity for the use of BRUMS, and in a parkland related population sample which adds new knowledge to the body of research on this scale in this less researched environmental study area. These results provide further support that BRUMS is suitable to use across subjects in future studies, though consideration of experimental mood adjectives used would need to be made given study-specific requirements, particularly if specific EAs are being examined, and to be more user-friendly and encourage participation

Chapter Six

Conclusions

6.0 Introduction to the Chapter

This final chapter will initially discuss the overall findings of the present study, and a critical comparison to results found in the limited research available that has examined these issues, which most often has been conducted outside the UK, and never at Cannock Chase AONB. Together with this site specific discussion, the chapter will also highlight the wider contributions to knowledge the present study provides, which can be applied across research subjects and geographical locations. This will be followed by an acknowledgement of the limitations of the present study, how these may have affected the results obtained, and the context of these issues within wider research. To finish, this section will identify further areas for academic research that the course of the present study has found, both for research that aligns more with the subject of the present study, and also broadly across subject areas.

As identified in the present study via use of Dunlap *et al*.'s (2000) New Ecological Paradigm (NEP) attitudinal measurement scale, baseline data has shown Cannock Chase AONB user groups have less pro-environmental attitudes than non-users. These highly important attitudes form a near direct, if not fully direct link to subsequent behaviours performed in the park (Kaiser, Wolfing and Fuhrer, 1999; Lopez-Mosquera and Sanchez, 2011; Greaves, Zibarras and Stride, 2013). As site user numbers have rapidly risen over recent years, and are predicted to continue to do so (Cannock Chase AONB, 2000; 2012), this puts the park's environmental sustainability under serious long term threat. Many examples of environmental damage to Cannock Chase can now be seen at various localities on site, including:

soil erosion, littering, arson, dog fouling, habitat loss, drug abuse and vandalism, among a host of other damages.

Many academic studies have attempted to address these numerous issues by trying to change behaviours on site (Pickering *et al*., 2009; Liu, Ouyang and Miao, 2009; Kim, Airey, and Szivas, 2011; Sreetheran, 2016). However, these studies agree that attempting to change behaviours is far too late to benefit the site under threat, and that much more research is urgently needed into the cognitive constructs that influence these behaviours. Two highly influential constructs are knowledge and attitudes, for which it is argued that knowledge, developed from past experiences and education, is a strongly significant predictor of attitudes, which in turn influences behaviours (Kaiser, Wolfing and Fuhrer, 1999; Liaw *et al*., 2014; Au *et al*., 2015).

This cognitive pathway of knowledge, to attitudes, to behaviours has been examined via a number of educational intervention studies (Liaw *et al*., 2014; Au *et al*., 2015; Kidd *et al.*, 2015). These studies have found that such interventions are effective in influencing and improving individuals' pro-environmental attitudes, and have been clear in their call for more research into this understudied topic area. An issue with existing intervention research is that despite individual studies obtaining attitudinal improvements, application of these interventions on other parkland sites does not guarantee equal/any success. This has led to calls for further research into site-specific interventions (Lopez-Mosquera and Sanchez, 2011; Fornara *et al.*, 2015; Kiatkawsin and Han, 2016) deliverable in a brief period of time (Sohn *et al.*, 2011; Hutchinson *et al*., 2015) and in an electronic format (Au *et al*., 2015).

Alongside this, authors are increasingly recognising the importance of emotional links, or place attachments, individuals feel towards parks (Stedman, 2001; Buta,

Brennan and Holland, 2012; Romolini *et al*., 2019). Place attachments are receiving more study in the literature over the increased impact they can contribute to interventions through use of psychological emotional appeals (EAs), which can be either positive or negative in tone (Shimp and Stuart, 2004; Roozen, 2013; Kruger *et al*., 2015). Authors are calling for more research into these EAs, particularly the combined use of positive and negative EAs (Septianto and Tjiptono, 2019), in determining their efficacy over time (Previte, Russell-Bennett and Parkinson, 2015; Lee, 2017) and optimum delivery frequency (Beitelspacher *et al*., 2012) across subject areas.

The present study, used as a case study, has addressed all of these calls for further research, by the design and delivery of a longitudinal educational intervention, which incorporates both positive and negative EAs in its delivery of the messages aimed to improve pro-environmental attitudes. In so doing, the study has provided essential academic research, specific to Cannock Chase AONB, on these important subjects where none currently exists, and beyond academic research to have real life impact on site. The body of research that does presently exist on AONB's and UK parkland sites are largely non-academic usage surveys that do not attempt to address the ongoing and worsening issues threatening these sites. The present study provides a much needed academic examination of issues these sites face, using clearly outlined data collection methods that are easily replicable, and which also contributes to wider knowledge across subjects. These methods are replicable across future environmental studies, both Cannock Chase AONB specific and non-site specific, and also across non-environmental future research, all within in a local, national and global context, that researchers and managers can use, and likewise by subject specialists and non-specialists.

As identified by the present study, after only being seen once at the start of the Phase 2 study, the intervention successfully improved all participant pro-environmental attitudes immediately after it was delivered. At the two month follow-up point all attitudes became less pro-environmental, but the majority improved again at the six month follow-up point. These results suggest that upon seeing the poster it was most effective in improving attitudes straight away, with the effects diminishing over time without repeat viewings. Despite the intervention's effects wearing off over time, real attitudinal improvements have been recorded across the longitudinal intervention. As argued in the TPB model by Ajzen (1985) these improvements will likely have had real improvements to users behaviours on site, for the improved sustainability of Cannock Chase AONB, despite the present study not being able to collect this behavioural data. These intervention methods, and likely immediate results can benefit other studies globally, both within environmental parkland subjects, and widely across research subjects that do not specifically cover environmental issues. These benefits directly come from the present study identifying easily replicable methods with which cross-topic researchers can develop tailored interventions in their own context and obtain relevant data to their studies, and within their geographical-specific locations globally.

These benefits also apply for park managers, and provide strategies that inform how they can begin urgent improvements to sites visibly suffering similar damages, even if quantitative and qualitative data collection methods have not yet been performed to verify this. In the case of Cannock Case AONB, the present study can further assist the site management strategies, by presenting a tested methodology that has proven results in improving pro-environmental attitudes. The practical implications of this being the potentially immediate improvement of user behaviours on site, according to

TPB theory, plus a cost-effective and easily replicable intervention that any AONB/non-AONB park staff and researchers can design and deliver. This latter practical implication may further develop into new/improved policies for Cannock Chase AONB management, e.g. rollout of a new/ongoing educational campaign targeting improved attitudes and behaviours onsite. An extended policy implication arising from this if further intervention successes are recorded, being a larger scale rollout of similar site-specific campaigns across other AONB's, to parks generally, and on a global scale. These collective benefits provide information and support for use of these methods in many research subjects, not limited to parklands, and which help increase knowledge more broadly across topics, and from theory to practice.

From examination of the present study's socio-demographic variables, the intervention positively and significantly influenced attitudes in each variable. Overall, the most pro-environmental group categories post-intervention were: females, some categories of both younger and older participants, those with higher qualifications, those in middle income occupations and those living between 1.5 to 60km from the park. Other variable groups that were found to be the most pro-environmental post-intervention were: those walking/running on to site and car users, those participating in photography, nature activities and running/jogging, visitors and residents, and some categories of participants that both use the site frequently and infrequently. These category-specific findings show that the methods used in this intervention study are effective tools by which quantitative data can be collected and mined for key predictors of more and less pro-environmental groups, supporting use of these methods by subject specialists and non-specialists. The successful generation of these findings provides further support for use of these methods across studies in

environmental and non-environmental subjects to support wider knowledge generation. These results fulfil Objective one of Aim three.

The Brunel Mood Scale (BRUMS) has shown that all emotion categories were felt by participants, indicating that the EAs built into the poster's content were felt by participants, strongly contributing to the overall results seen, and as further supported by qualitative feedback received. The earlier discussion has identified BRUMS to be predominantly used in sport related studies and not in environmental sustainability studies. However, the present study has shown that BRUMS can successfully be applied to environmental subject areas to determine participant emotions, contributing new knowledge to the subject, and providing support for the use of BRUMS more broadly across subject areas. Although at present much less research using BRUMS has been conducted in non-sport subject areas, including environmental topics, necessitating much more research in these areas. However, Huhmann and Brotherton (1997) discuss guilt to be a widespread emotion common to many countries, as are many other emotions, potentially allowing for the application of this site specific method of intervention to be used locally, nationally and internationally in parkland management strategies. In addition, the present study has shown a shorter intervention and questionnaire and mood scale with experimental adjectives to have been beneficial in encouraging individuals to participate, and test the experimental EAs used. Further research is needed in these areas to determine best practice in questionnaire design and length, use of specific EAs and their experimental inclusion in the BRUMS mood scale, with this research needed across subjects to enhance wider knowledge.

The present study, used as a case study provides a framework to inform and support development of further research both cross-subject, and on a local, national and

global scale to aid generation of a wider knowledge base. In terms of this wide scale applicability, this case study has shown that a poster intervention method is highly effective in conveying information quickly, easily and cost effectively to relevant groups, and within the present study created immediate pro-environmental attitude improvements. Further to this, some success from the tested intervention can be achieved over a period of up to six months. The low cost nature of the intervention may be of particular benefit to researchers and management bodies globally who are looking to address existing and potential issues inexpensively. Hutchinson *et al*. (2015) argue that educational interventions do not need to be produced or delivered by subject specialists. This provides significant scope for the methods used in the present intervention to be utilised by any and all staff in parklands worldwide for a global scale drive towards parkland sustainability, so too by researchers and staff across non-parkland research where educational interventions are used.

6.1 Limitations of Study

As discussed in section 5.2.4, the present study is unable to either provide support, or argue against the cognitive-behavioural link suggested in the Theory of Planned Behaviour model by Ajzen (1985), in that attitudes/behavioural intentions directly influence behaviours, as only the influence of knowledge increase on attitudinal improvement was examined here. This is a common issue in the literature as studies often encounter this limitation, where attitude/behavioural intention data is obtained but not able to be tested against actual behaviours (Lopez-Mosquera and Sanchez, 2011; Greaves, Zibarras and Stride, 2013), or that testing is prevented by time constraints of the research (Judge, Warren-Myers and Paladino, 2019).

This case study did not ask participants how much environmental education they had previously received as part of the baseline and post-intervention questionnaires, to determine if levels were generally high or low, and the effect of this on post-intervention attitude improvements recorded. This is important given the findings by Xiao and Hong (2017), that baseline environmental education levels of participants can influence the extent to which pro-environmental attitudes can develop. For example, Xiao and Hong found that low baseline environmental education levels correlated with lower pro-environmental attitudes. This may have implications on future intervention efficacy for wider knowledge generation collectively from environmental and non-environmental future research, as an absence of baseline levels may render interventions largely or even completely ineffective. Collection of study-related baseline education data can allow interventions to be more tailored to the target audience, to maximise the potential for attitudinal improvement, with inclusion of questions that determine existing environmental education levels. However, future research across subjects must take care to avoid making any questionnaires they use from being too lengthy, and putting off participants from taking part.

Whilst the content analysis sample was of adequate size in allowing the researcher to identify common format and content themes, the sample was not as large as seen in other studies (Banerjee and Greene, 2013; Afzalan and Sanchez, 2017). This sample size difference may be due to the specific nature of the case study topic area, which is not shared in these studies, together with potential loss of materials which may be deemed out of date by park managers. The sample used in the present study could have possibly been extended via contacting UK mainland AONB management bodies and other relevant official bodies to directly request any other

intervention posters/leaflets they may have used. Through use of these suggested methods in obtaining larger and more representative content analysis samples, this improved approach can enrich wider research by benefitting future studies across subject areas and geographical locations.

Despite guidance being sought from published studies on what elements constitute specific EAs, few acknowledge what the specific elements are. This creates the risk of EAs used in interventions not being felt by participants, or accidental EAs being felt that were not intended by the researcher, and which may influence a different reaction than the one intended (Huhmann and Brotherton, 1997). The pilot study of the intervention has been highly beneficial in identifying EAs felt by participants, but from median and modal scores, only some of the intended EAs used were fed back as being felt. More research is needed across subject areas into specific image and text content that aims to use specific EAs to determine what exact elements represent each EA to avoid these issues.

Sampling methods used here have included non-probability convenience sampling in the quantitative questionnaire of Phase 1, and a combination of purposive and random sampling which was extended by the snowballing technique in Phase 2. Despite successful use in the literature, as a consequence, some present categories of socio-demographic groups have disproportionate sizings, where certain categories dominate that group's results, putting the results at risk of bias from sample homogeneity. This may be easily resolved by practitioners conducting further research into the use of the quota sample method, extending wider knowledge in this sampling method across subject areas.

Whilst measures have been taken in the case study to try to ensure that responses are anonymous and less prone to social-desirability bias, this cannot be guaranteed due to the limited research team numbers, particularly in Phase 1 due to the more public nature of the public park-based setting. Whilst lone park users could have been solely targeted so as to guarantee anonymity, this may have detrimental effects on the sample becoming less representative of the population. For example, lone adults would be less likely to participate in more group-oriented activities such as children's play areas and GoApe, thus having the effect of excluding these groups from the sample. Cross-subject future studies using paper copy questionnaires should instead aim to recruit a larger research team where questionnaire distribution can be completed on a larger scale, particularly in maximising data collection from participants in large groups, and so that the research team can more effectively manage the response conditions.

Initial questionnaire results from the Phase 2 intervention show a significant improvement in attitudes immediately after delivery of the poster, improvements which unanimously declined at the two month follow-up, and then largely improved again at the six month final follow-up. This changeable nature of the results across the latter two questionnaires can easily be explained for the two month point results, as without re-delivery of the poster to reinforce or remind participants of the message, attitudes declined from the message being forgotten. This is supported by Eagly and Chaiken (1993), as cited in Guo *et al*. (2017), who argue that individuals increasingly forget the educational messages they have received as time passes. However, despite participants not being shown the poster again at the six month point, pro-environmental attitudes greatly improved. These findings could be a result of the poster being memorable to participants through an increased impact from use

of the EAs. Alternatively, these findings may be a result of respondents having forgotten the study they began half a year previously, choosing to recap the previous email invites, and possibly viewing the poster again, which would go against the factors being examined. To avoid this issue, both in cross-subject future research and in parkland-specific studies, invitation software would need to be used that prevents participant access to intervention stages they have already completed. This helps ensure responses are based solely on memory of the intervention, and that responses are not based on intervention recaps. Also, future studies would need to ensure full clarity of message in invitation introductions to further reduce risk of recaps.

6.2 Future Recommendations

In addition to the limitations of this case study and suggested solutions going forward, as set out in section 6.1, future research is needed into optimum delivery conditions of the intervention material. As argued by Liaw *et al*. (2014) and Hutchinson *et al*. (2015), increased delivery frequency is more likely to create lasting impacts on attitudes, and as ultimately aimed for, on behaviours. This case study has shown that a single delivery point intervention can greatly improve pro-environmental attitudes, and is most effective immediately after delivery of the intervention. However, these attitudinal improvements greatly decreased after two months, and to a lesser extent after six months, supporting the argument by Liaw *et al*. (2014) and Hutchinson *et al*. (2015).

Further research is needed to determine how often an intervention should be administered to participants so as to maximise attitude improvement, and how best

to create a lasting change; the present study having only examined a six month period for lasting intervention effects. These interlinking factors necessitate further research across subject areas into longitudinal studies of both shorter and longer duration, single and multiple intervention materials, delivery frequencies, EA inclusion and design, and the consideration of these areas singularly or in combination, to increase knowledge in these critically understudied topic areas, both in environmental and non-environmental subjects globally. Further research into these will allow practitioners to determine what precise grouping of intervention components, and their design, can produce the greatest ongoing influence on attitudinal improvement, and greatly extending methodological knowledge.

There are a number of areas for further research arising from the broad scope of this case study. Concerning Phase 1, the contrasting views on what socio-demographic variables are significant in predicting pro-environmental attitudes has shown that individual study findings cannot simply be applied across subject fields or populations. As findings are study specific (Lopez-Mosquera and Sanchez, 2011; Raymond, Brown and Robinson, 2011), further research is needed to determine what variables are significant for individual cross-subject studies, both for specific subjects that have not received any prior academic study, and where the existing research may be long out of date. Further research is also needed within subjects that have received prior academic study, to examine the changes that have occurred over time, between the previous research and the present day, and to inform and allow future interventions to be brought up to date and tailored to the current issues being faced. This research, particularly but not exclusive to the parkland context of this case study, is needed in terms of user numbers, user socio-demographic data and changes to usage patterns, as has been seen at the present study site

(Cannock Chase AONB, 2000; 2012), nationally in UK parks (Table 1; 2), and globally (Simmonds *et al*., 2018; Watson *et al.*, 2018).

One area of further research applicable across subject areas would be in tracking individual survey participant responses, or allotting specific numbered questionnaires to participants, to determine individual attitudinal changes across a longitudinal study, with a focus on qualitative data as to what precisely caused any attitudinal changes. This would aid researchers in determining if the change can be fully attributed to the educational material presented, if external influences were the cause, or a combination of the two. This will ensure all questionnaire stage responses are from each participant, as this case study's data collection method does not allow researchers to identify the participants who have dropped out at later questionnaire stages. If participants social demographic information should change, i.e. moved home region, changed profession/retired, obtained higher qualification(s), then tracking or numbered questionnaires will allow responses to be anonymously individualised across the study. This will further allow any correlations between demographic changes and attitude changes to be identified and scrutinised for their exact cause.

Related to participant recruitment, is the need for further research across studies generally that incorporate baseline data collection from a control group. Whilst this is not an issue here as the case study has contributed new knowledge to this area, this is an issue in the literature generally, both in environmental and non-environmental subjects, with many authors still highlighting the need for a control group to provide validity to study results, which is often lacking (Amonini, Pettigrew and Clayforth, 2014; Hutchinson *et al*., 2015; Schwarzer *et al.*, 2016). These collective areas for

further research whilst found within the context of a site-specific parkland study, are relevant issues for research across topic areas and localities.

From July 2017 to April 2019 individual invites were emailed to potential participants for each of the three questionnaires across the longitudinal study. 2237 invites were emailed for the first questionnaire, which received 234 responses. Following natural drop-out requests 2215 invites were sent for the second questionnaire, which received 196 responses, and 2203 invites were sent for the third questionnaire, which received 210 responses. Response rates achieved were 10.46%, 8.85% and 9.53% respectively. There are several possible reasons why these potentially low response rates were obtained (Banerjee and Greene, 2013; Afzalan and Sanchez, 2017), including common factors of those who have begun participation dropping out of the study before it is completed for various reasons. From feedback, the present study has identified a number of reasons, including invites to organisations where staff have left their post/retired, invitees no longer feel they qualify with the stipulated 1 year site visit limitation, and insufficient available time to participate fully, amongst other factors. There may also be reasons preventing invitees from participating, including uncertainty and wariness as to the origin of the unfamiliar email invites which contain the web links to the poster and questionnaires, this being in light of numerous well publicised global ransomware attacks (BBC News, 2017) and frequent phishing and scam emails that email users regularly receive worldwide. Future studies across all subject areas must be aware of these issues when designing intervention materials and data collection methods. Further research into these areas is needed to help identify what specific techniques can yield optimum response rates, providing researchers with an extensive knowledge base with which to tailor their methodological design.

General Data Protection Regulation (GDPR) has impacted on the number of questionnaire responses obtained particularly in Phase 2 of the study, with feedback received from a number of individuals/organisations who have declined to participate to avoid being in breach of this new legislation or to just avoid the risk of being in breach of it due to uncertainty of the legislation. In future studies, research is needed into utilising an email invitation approach to educational interventions. Response rates could potentially be increased for this method in future studies by researchers contacting individuals/organisations with a form of pre-survey introductory contact, i.e. a phone call/plain email that does not contain an unknown web link as part of the initial enquiry, as used by Liaw *et al.* (2014). This can determine if they would be interested in participating, followed by the web link invite email if individuals/organisations consent to participate. However, much more research is needed across subjects to determine what methods yield optimal response rates in online data collection techniques, and will broaden the knowledge base surrounding these methods. These collective issues discussed fulfilling Objective three of Aim three.

In summation, this study has provided a substantial new contribution to knowledge, through development and analysis of individual and collective methodological elements in the fields of qualitative study content, design and data collection techniques such as semi-structured interview questions and methods; multiple areas of intervention content, design and delivery, such as emotional appeal content and design, electronic delivery methods and longitudinal study design; quantitative study content, design and data collection techniques, such as questionnaire content and design, mood scale and experimental adjective development and longitudinal study design, and all specifically within the context of the present environmental study of

Cannock Chase AONB. However, whilst these findings are specific to this particular site and subject area, it must be emphasised that the wider knowledge obtained from this case study, particularly around methodological design elements, is applicable and replicable across subjects, to both environmental and non-environmental topics, and for studies across various geographical localities. This case study provides information to help guide and support researchers across a broad spectrum of future research, where specific use of similar methods may be required, or from their present use here may henceforth be considered as being of benefit to these studies. The research findings of this study, within their parkland context, and seen outside of it, are a valuable tool in providing support for the importance of promoting and encouraging attitudinal change in user groups, yet there is still much more research needed into these areas if the issues highlighted here are to be effectively resolved.

6.3 New Contributions to Knowledge

The present study has provided the following new contributions to knowledge, which are relevant both specifically for Cannock Chase AONB, and which also form a framework to help inform and support future research across parkland and non-parkland environmental studies, in non-environmental studies, from local to international location and scale, and in applied management strategies globally. These contributions, which are replicable across subjects, can help to inform, support and potentially improve research practice and real world policy:

1. First academic research into user attitudes at Cannock Chase AONB

2. Questionnaire content/design specific to measuring attitudes and behaviours in a site-specific context
3. Use of an intervention poster design to develop and test a low-cost and potentially high-reach method
4. Use of emotional appeals in an environmental attitude intervention
5. Electronic intervention delivery
6. Longitudinal intervention design
7. Use of Brunel Mood Scale in an environmental attitudes study
8. Use of experimental mood adjectives
9. Identification of individual user group attitudes

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Appendices

Appendix 1 – New Ecological Paradigm Question Scale

1. We are approaching the limit of the number of people the earth can support
2. Humans have the right to modify the natural environment to suit their needs
3. When humans interfere with nature, it often produces disastrous consequences
4. Human ingenuity will insure that we do NOT make the earth unliveable
5. Humans are severely abusing the environment
6. The earth has plenty of natural resources if we just learn how to develop them
7. Plants and animals have as much right as humans to exist
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations
9. Despite our special abilities, humans are still subject to the laws of nature
10. The so-called “ecological crisis” facing humankind has been greatly exaggerated
11. The earth is like a spaceship with very limited room & resources
12. Humans were meant to rule over the rest of nature
13. The balance of nature is very delicate and easily upset
14. Humans will eventually learn enough about how nature works to be able to control it
15. If things continue on their present course, we will soon experience a major ecological catastrophe

New Ecological Paradigm scale by Dunlap *et al*. (2000)

Appendix 2 – Phase 1 Interview Transcripts

17/10/12 Birches Valley

1st Group: one woman and one man

Woman: walk the dogs, 18 months-3yrs coming to the site, come to site for the facilities available. Tradition/habitual visiting of site. Don't like waste, concerned about amount of resources the public use. Need to be careful of some other site user groups, e.g. cyclists. Site is special as it is for the public, free to all, must move with the times to stay available, danger that it will go into private ownership. Can get expensive if paying for parking and buying drinks, often chose which to buy, not both. Some paths are multi-use, some are single user group use only, e.g. cycle tracks. Like to go to both man-made and natural outdoor leisure sites, but man-made are a bit more restrictive re: size, route. Chase is unrestrictive in where you can go, dogs can go off the lead. Environmental damage is dependent on footfall, and Chase paths are well managed, public value what they have. Horses use same paths as walkers and can do damage to wet soil, but mostly no problem with that user group as there are not enough of them.

Man: walk the dogs, come once-twice a week in winter, more often in summer, visit all year round, live semi-locally, nice facilities, well laid out, forest environment. Start at Marquis Drive and walk to Birches Valley and have a drink. Roughly similar route each visit with occasional variations. 3hr stay. Also do some cycling. Pleasant environment enjoyed by all of group. Some concern for environment (e.g. recycling, buying sustainable items where possible), but more so is controlled by the government. Don't like waste. Try to take care of any environment being visited, not littering (no change for different places). Like the free parking at Marquis Drive. Mostly Chase is big enough that there are no problems from other user groups, e.g. no cyclists at Shugborough end, but occasionally some cyclists go too fast. Biggest damage from fishermen bringing cars through Chase to get to ponds.

2nd Group: one woman and one man

Woman: dog walking, started coming in last few months after getting the dog

Man: cycling and dog walking most weekends/every week

Park at Birches Valley or Marquis Drive sites.

17/12/12 Birches Valley

1st Group: two men and two women.

Interviewer: What are your views about Cannock Chase's environment?

Man 1: Pretty good, we come up here quite a bit. We like it so we do use it a hell of a lot. Since the centres been opened it's come on leaps and bounds. We've lived in Stafford for 30yrs so we always pop down on the weekends.

Interviewer: How many times roughly would you use the chase?

Man 1: once a week, I come here mountain biking.

Interviewer: Do you do any other activities when you're on site, like walking?

Man 1: Yeah, I do walking and bird watching.

Interviewer: Have you noticed much degradation or any environmental problems on site?

Man 1: Not really, I mean obviously with motor biking the soil gets turfed up a bit. The conservation the cycling association does around here sorts it all out.

Interviewer: So you think the Chase is well managed?

Man 1: Yeah. Probably could do with a bit more conservation over some of the sites, but as I say it's still early days, only a couple of years in.
Interviewer: Have you noticed much conflict between user groups at all?
Man 1: None what-so-ever.
Interviewer: Are you concerned about the environment when off site or when on other sites, do you do any recycling?
Man 1: Yeah. Well now you're forced to do recycling through the government, so it becomes second nature like.
Interviewer: Would you act differently if you were on different site?
Man 1: No. I mean as a mountain biker you go round all different places, you just act the same as you do here, common courtesy.
Interviewer: Does Cannock Chase hold any special interest for you, is it a special place for you from past experiences, do you have any emotional bonds to it?
Woman 1: We have because my father-in-law used to come over from Milford site and do the paper round, and that site is right on our door step.

2nd Group: two women and two young children (primary school age)
Interviewer: What are your views on the environment, do you do much recycling?
Woman 1: We do our bit; they won't empty our bins unless we recycle. So yeah we do recycle. We plant the trees given us by Santa. I bought a Christmas tree previously in a pot and it lasted two years. That's better than keep chopping down the trees.
Woman 2: I don't know 'cos they farm them, the forest.
Woman 1: They've cut down on the lights this year. They've normally got millions and millions of them. They've not put loads and loads of decorations this year. You know the lights might be the environmental thing.
Woman 2: It actually looks better.
Interviewer: Are you here for Santa's grotto or a tree?
Woman 1: Yeah we've here for both and a coffee.
Interviewer: What made you want to buy a tree from here, is it because you believe they're sustainably grown, that the forest is well managed?
Woman 1: Yeah, all of those reasons. This'll be our eighth year we've bought our tree from Cannock Chase.
Interviewer: Are you regular visitors to the Chase?
Woman 1: Yeah we often use the cycle trails.
Interviewer: Do you do any other activities?
Woman 1: We've done Go Ape, walking, we go round the sculpture trail, the healthy heart walk. I used to run round here with you and your pram.
Interviewer: Do you live locally?
Woman 1: We used to live in Rugeley, the last five years we've lived in Barton, so it's a bit further to come. We could get trees much closer.
Interviewer: Is there any emotional significance for coming here as opposed to going anywhere else?
Woman 1: Yeah.
Interviewer: Have you noticed any conflicts between user groups? Do you notice certain user groups do more damage to the site than others?
Woman 1: I know full well that horses do more damage than bicycles. I have that verified by the forestry commission. I do also know that this bloke down at Slitting Mill who goes absolutely bananas about any of these activities on the Chase, and certainly with the concerts that go on on the Chase.

Woman 2: Why? Noise pollution?
Woman 1: Well if it was Verdi's operas he'd be alright.
Woman 2: You can't please all people all the time can you.
Woman 1: The one thing that does need to be sorted out is that there are a lot of bike riders on the Chase and they've not been bike riding that long, so I think they need to have the etiquette spelled out a bit more to them. I mean like riding behind people fast and making them jump. They don't do it on purpose but, you know they're there when they're riding a horse.
Interviewer: Would more advertising boards or promotion boards do you think that would be better?
Woman 1: Yeah, I think at busy times.

3rd Group: two women, two men and two+ children
Interviewer: Do you do much to protect the environment in your day to day lives?
Woman 1: Recycle is probably the main thing.
Interviewer: Do you do anything else when on Cannock Chase or out and about?
Woman 1: Respect the Chase. Don't throw litter.
Interviewer: What Activities do you do when you're on site.
Man 1: Bike riding.
Woman 1: Dog walking.
Man 1: What do you do on the Chase? (Man 2 just arrived).
Man 2: Dogging (laughter). Mountain biking, walking, Go Ape.
Interviewer: Do you visit the site often?
Man 2: Twice a week.
Interviewer: Do you live locally?
Man 2: Yeah, Cannock.
Interviewer: Does the Chase hold any emotional significance?
Man 1: Not really. You take it for granted, I've been coming here since I was a kid.
Interviewer: Have you noticed any degradation on site, or do you think the chase is well managed?
Man 1: I think it's well managed, they seem to be replanting trees all the while.
Man 2: It's good with all the events they have on here, they maintain the site afterwards. It's looked after with the concerts.
Interviewer: Do you do much to protect the environment in your day to day lives?
Man 2: Yeah, recycle. Fill the blue bins to the top every week.

4th Group: one woman in 60s/70s, children and one woman in 30s
Interviewer: Does the Chase hold any special significance for you?
Woman 1: No. We only live down the road, it's in our back garden really.
Interviewer: Have you been coming here a lot?
Woman 1: No, I don't come up here on my own.
Interviewer: Do you do much to protect the environment?
Woman 1: I do my own recycling at home yeah.
Interviewer: Is that everyday kind of recycling?
Woman 1: Yeah.
Interviewer: When on the site what kind of activities do you do?
Woman 1: I have a walk around, but I don't do much up the Chase, unless I come up with the grandkids.

Interviewer: Have you come for Santa's grotto or the trees?
Woman 1: Yeah we've come for Santa's grotto for the girls. They had a lot of stores here the year before last and lot of decorations, but there's hardly any this year. (Woman 2 arrives).
Interviewer: Do you visit the site often?
Woman 2: Yeah, especially the summer here a lot.
Interviewer: So more often in the summer?
Woman 2: Yeah.
Interviewer: Does the environment generally mean much to you? Do you do any recycling?
Woman 2: Just your basic recycling at home.
Interviewer: Do you come to this Christmas event often?
Woman 2: Yeah I've come the last few years.
Interviewer: Do you have any emotional bonds to the Chase, is it special to you in any way?
Woman 2: No, I've lived here all my life so when I was young I always spent time going horse riding up here, or coming after school with friends up to the Chase.
Interviewer: Do you do many different activities on site?
Woman 2: Walking, I've done Go Ape as well.
Interviewer: Do you notice any degradation on the site at all? Do you think the parks well managed by the forestry commission?
Woman 2: Yeah it's ok I suppose.
Interviewer: Do you notice if any user groups do more damage than others?
Woman 2: I don't know. I don't notice.

5th Group: one woman and one man
Interviewer: What are your thoughts on the environment? Do you do anything for the environment such as recycling?
Woman: Yes we recycle.
Interviewer: So everyday kind of things?
Woman: Yeah.
Interviewer: Do you go any further than the recycling?
Woman: No just the recycling, the rubbish. That kind of thing.
Interviewer: What are your reasons for coming here today, is it Santa's grotto or a tree?
Woman: A tree.
Interviewer: Have you been coming here long?
Woman: A couple of years. We come at Christmas, but sometimes with the dog or cycling.
Interviewer: Do you live locally?
Woman: Yoxall, 10 miles away. (Visit the site medium frequency) Yeah.
Interviewer: What other activities do you do on site?
Woman: Walking and cycling really, with the family. I've done Go Ape.
Interviewer: Have you noticed much degradation on the site at all? Do you think Cannock Chase is well managed?
Woman: Yeah I think it is well managed.
Interviewer: Do you notice much conflict between user groups, do you notice if one user group does more damage than another.

Woman: Not when I've been here, no. There might be, but I've not witnessed or heard anything.
Interviewer: Do you like to maintain the environment when on site here?
Woman: Yeah.
Interviewer: Would you do anything different on a site more local to you? Would you generally maintain any environment (site)?
Woman: Yeah.

6th Group: one man, one woman and two adult children in 20s
Interviewer: What are your thoughts on the environment?
Man: It's well respected and well looked after. So I think they're kind of looking after the area. I'm quite happy with that, the environments nice.
Interviewer: Does the environment mean much to you, do you do much for the environment in your own time?
Man: I work in the oil industry, so we're very much environmentally aware. So I have to do MROD documentation and comply to 14,001 legislation
Interviewer: In your leisure time what kind of things do you do for the environment?
Man: Just recycle correctly and respect the environment.
Interviewer: How often do you visit the Chase?
Man: Walk the dog every other day at Shoal Hill, the rest of the site we come a couple of times a month.
Interviewer: I gather from that you live locally?
Man: Stafford.
Interviewer: Do you do many other activities on site other than dog walking?
Man: When the children were growing up we used to cycle here all the time. Go Ape, the segways. Mountain biking and long walks with the family. We use the park a lot. The concerts also.
Interviewer: Do you visit many different parts of the Chase?
Man and Woman: Yes we try to. Severn Springs, Stepping Stones, Milford, back of the Sister Dora, Shoal Hill.
Interviewer: Have you noticed any conflicts between user groups on site? Do you think one group does more/less damage than another?
Man: No not really. It's nice to see the horses, it's nice to see the lads on their bikes, they're all respectful. Not everybody picks up dog poo, but when it's off to the side. When it's walks used by children that's disrespectful. That's the only thing we would disagree on. We have a lead with environmental bags attached to the lead, it's no harm to pick them up on the way back.
Interviewer: What are your reasons for coming here today?
Man: To get a tree, it helps support the forestry commission, and have a bun. Have our tea.
Interviewer: Is it a sort of tradition for you?
Man: Yeah, since they (children) were little. So we've been coming here over twenty years.
Interviewer: Does the fact that the trees are sustainable mean that you come here specially instead of going somewhere else?
Man and Woman: Yeah. It's supporting the forestry commission. We're having a tree and celebrating, but giving a little bit back, with the way that they are dealing with it. They cut one down, plant half a dozen.

7th Group: one man, one woman and two teenage children
Interviewer: What are your opinions about the environment in general? What do you do to protect it, if anything?
Man: We're obsessive recyclers, 'cause I'm a geography teacher. We like the environment, we're an outdoor family. We ski, that's bad for the environment. We play in the sea, be climb, we mountain bike on the Chase, so we're around here a lot.
Interviewer: Would it be fair to say you do everyday kind of environmental things, like recycling?
Man and Woman: Yeah, energy saving as well. We could do more but we can't afford to. I'd quite like a hybrid car, but it's a step too far.
Interviewer: When they get a bit more reasonable?
Man: Yeah. I'm of the view that it would be better to do what they do in developing countries, which is to run them for forty years, which is probably a better use than keep buying new ones. It's like the scrapage scheme was a complete con, environmentally.
Interviewer: I'm guessing that you live locally with all the activities you do on site?
Man: Yeah. Couple of miles down the road.
Interviewer: So you do a good variety of activities, all of you, on the Chase?
Man and Woman: Yeah. Running, cycling on the Chase. I mountain bike a couple of times a week on the Chase. We walk on the Chase. I've even skied on the Chase when the snows been down. We've sledged on the Chase.
Interviewer: Have you noticed the site is degraded at all in any particular place?
Man: I think some of the mountain bike tracks are under pressure. Yeah, there's no question about that, and even some of the footpaths are well worn. I guess it's like even here, you have to admit, but I suppose the idea is to manage it and contain it, rather than letting it spread. But yes certainly some of the lazy bits near the car parks are under pressure. You can see the difference between there and the far away bits.
Interviewer: Do you think the Chase is well managed, despite those things?
Man: Definitely, yeah. If you come out enough you'll see the forestry workers tidying, and I've seen that many times when I've been out on the path at ten and eleven at night cycling you get the odd warden in a land rover, yeah we cycle at night, the daddies do. But you'll see the odd warden out in the middle of the night. You can tell why, we've seen the odd burnt out vehicle.
Interviewer: Have you come for a tree today, not Santa's grotto?
Man: Yeah, a tree today.
Woman: We used to come for Santa's grotto, we've got a tree in our garden from when they got one from Santa and it's still there, so that's recycling, and they've grown a tree for the environment. One tree will make a little bit of a difference. Also involving the local community on the Chase, 'cause I work at one of the local hospitals and I know the patients did some of the pottery for one of the walks and the display around here, and we've walked round there when we've had visitors, and they've found that quite interesting also. I've played in the adventure playground with the children, it's fantastic.
Man: Go Ape is quite well hidden.
Interviewer: As the trees are sustainable, is that a reason you keep coming back, do you keep coming back?
Man: Yeah we do have one most years .
Interviewer: Is that important to you that they are sustainably grown?

Man: Oh yeah, we wouldn't have one if it wasn't. From Geography, we know they're thinnings. But I did hear once that they helicoptered, I know it can't be true, the thinnings to here from somewhere else. That's shocking, but I don't think it can be true. It must have been a rumour, it can't have been, that just doesn't make sense to me.
Interviewer: Have you noticed any conflicts between user groups at all?
Woman: Sometimes when we've been for a walk on the Chase, it's better that they've more recently separated the keen cyclists, the ones going really fast from the walkers. It's early days, when you hear a bike behind you, it was a bit of a worry when ours were little. Most cyclists are considerate but you do get the odd one.
Man: And you get the odd pedestrian who won't get out the way.
Woman: But it's much better managed, (to man) I think you must see that as a cyclist. Now it's separate, if you choose to walk on the cycle routes that's your fault and vice versa.
Man: Within a few minutes of being here you're not running into many pedestrians anymore. It's probably pressure, as there's so many people here on a Saturday and Sunday. Again, it's well managed, you've got the car park and everything, but it's the number of people, 'cause it's not just the locals, it's people coming from London for a weekend at a B&B or somewhere, you know, you can definitely see how popular it is. Obviously you've got some very positive things like the wheelchair trails. Very appropriate efforts in looking after the place, but I guess it's the same as everything, if it's accessible it's popular.

<u>8th Group: older woman in 60s/70s, her two adult sons in 20s/30s and one son's girlfriend</u>
Interviewer: Are you bothered about the environment, environmental issues?
Woman 1: A bit, depends really.
Man 1: Don't really think about it much.
Interviewer: What bits sort of bother you?
Woman 1: Like littering, that sort of thing I don't like that, wasting and like it is nice to get out and see some countryside and woods and that.
Woman 2: I think it's lucky where we are, 'cause we don't notice that things are going too much array, do we. Obviously if we lived in a city we'd think a bit differently, but this here, it's alright where we are. Probably the wrong way to look at it.
Interviewer: Not that's alright, that's how you see the world and that's how it is. So you live quite local to Cannock Chase?
Woman 2: Yeah, a few miles down the road.
Interviewer: And do you come here quite regularly then?
Woman 2: Well if my other son was here, he's in here all the time on his bike. That's why we're stood here waiting.
Interviewer: So you've not come for the Christmas…?
Woman 2: We've come for the Christmas tree. (Other son arrives, Man 2).
Interviewer: So you enjoy coming here?
Man 2: Yeah.
Interviewer: What do you lie about it?
Man 2: Motor biking mainly I do, so er the trails and stuff.
Woman 2: I like driving through it I must admit. It's nice to have this here, we see the deer's when we're driving back, so that's nice.

Interviewer: And you enjoy all of that when you're here to see all of those kind of things?
Man 2: Yeah.
Interviewer: We were asking before whether you're concerned about the environment, and I think it was because you live here that you you're kind of aware of environmental things. Do you do anything yourselves to protect the environment?
Two Women: Recycle.
Man 2: We don't do much do we really.
Woman 2: Actually no, I'm afraid.
Man 2: Don't drop litter.
Woman 2: No I wouldn't let them do that. No we don't do anything.
Interviewer: So more everyday things, you do those types of things? (Affirmed). Does the Chase mean anything to you, or anything special to you? Is it a special place to come to? Does it have any real meaning?
Man 2: Yeah, I love walking round here.
Woman 2: I love living by the Chase, I wouldn't want to live in a city.
Woman 1: I think 'cos I'm from Wales, I think it's a big attraction. I've heard of it before, and I think a lot of people come here and visit from everywhere, and they have bands here and stuff.
Woman 2: We're just lucky. I wouldn't want to live away from this. I love, say coming home, driving through it and you've got it there.
Man 2: It's special walking around it, like the lakes, pretty.
Woman 2: In the summer.
Interviewer: Do you think that the Chase is well managed?
Woman 2: I think so.
Woman 1: Yeah 'cos it's got all the pretty little sculptures round, it's nice.
Interviewer: With you coming here to use your bike, do you think about any damage that's done by other users, do you look at that?
Man 2: Well you see it, but it's not so much damage as forest areas that need to be managed, so every five years they chop some trees. But you don't see anything other than normal stuff. Pretty well managed generally.
Woman 2: It's not nice to see the fields when you're driving past and they're just totally chopped down. They have to do that for a reason I assume. You trust that they're doing it for a reason.
Interviewer: Do you find then coming here, if you wanted to walk around or you wanted to come on your bike that if you wanted to come and do that and it's fairly trouble free for you?
Woman 2: Yeah, it is. You can park anywhere in the Chase really and you can go on a dog walk and stuff.
Man 2: Yeah everything's well signposted, walks and bike rides and stuff.

<u>9th Group: one woman and one man</u>
Interviewer: Are you concerned about the environment? Environmental issues do they bother you in any way?
Man: Yeah, that's why we come here.
Woman: Yeah we feel , our two sons are twenty-four and twenty-six, so really it was a nice family thing to come here 'cos we felt that we wanted a real tree but we wanted to give something back because we knew here they replace trees. The

money we pay replaced more trees than we were actually buying. So that was a good thing.
Interviewer: Would you do that kind of thing generally, would you think in an environmental way when you're doing other things, or when you're buying things?
Man: We do a fair bit. Not with everything clearly. A lot depends on money, but we actually come out of our way to come here, and have done now for years.
Woman: For the last twenty years we've been coming here, so it's part of our ritual, we know we've got to come here. It's all about time constraints really, it's actually having that time. There are places that are closer to us , but it doesn't seem to have the same impact as buying a tree from here.
Man: We know the money goes straight back into the forestry commission, as opposed to the farmers pockets, for a bit extra. I spend the extra on the fuel to get here.
Woman: Well there again I don't know, 'cause we've got a diesel car that's very economical to us, so I know we've got to travel the extra mile but over the years the cars that we've had, we've thought about how many more miles can we get which is more energy efficient and which is doing less to the environment, so in the long term it's swings and roundabouts.
Interviewer: Do you come to Cannock Chase apart from that?
Man: No, we've got Sutton Park right next to us. So if we're going walking or anything like that we go to Sutton Park. Probably about 12-15 miles away.
Interviewer: So you come quite a journey then to get here?
Man: Oh, yeah.
Interviewer: So apart from the Christmas tree you wouldn't come here, or?
Woman: It's one of those things, we say every year oh we need to come walking. We do like walking, but we never get the chance to be able to come here, so again it's probably time constraints.
Man: Well it's a good 40-45mins.
Interviewer: So you know when you're doing anything in your free time, whether it's affecting the environment or not, is that something that goes through your mind at all?
Man: Certainly energy efficiency with regards to light bulbs and stuff like that, we've used all those. I've just done a job today where I've put energy efficient light bulbs in somebody's garden, and last week I was doing the same , so anything to bring down the carbon footprint. So yeah it does help. If everybody did a little bit it would help. We recycle quite a bit on the Walsall side, we have a recycle bin, and the recycle bin is twice the size of a normal bin, and we only put perhaps half in the normal bin, and yet the recycle bin is always completely full.
Woman: Full in a fortnight.
Man: If everybody did the same then obviously we'd be a lot better off.
Interviewer: From what I've heard of it, the Midlands is quite a big recycling area, I don't know how that compares to other areas.
Woman: In Birmingham they do do recycling, but they tend to not be in the big wheelie bins, they have like the tubs. People tend not to use them.
Man: Too much hassle.
Woman: They are supposedly implementing those. Like you say, if everybody does their little bit, it is all gonna help.
Man: Walsall do quite well, and Staffordshire do exactly the same. We've got three bins, we've got a black bin for all the household waste, a green bin for all the recyclables and a brown bin for all the garden refuse, and it's good, because

obviously a lot of stuff can go back into compost and a lot of stuff can be recycled. And if everybody did the same it would be a lot better.
Interviewer: Does the Chase mean anything to you, is it a special place for you?
Man: Apart from the war memorials and everything else, yeah I mean we know all about those. But yeah it is nice to come here. I mean it's a big open area, owned by the forestry commission where you can see wild animals.
Woman: And we have over the years actually seen the reindeer as we've driven past. The one thing I've noticed is the change in climate. When we used to come here we used to come really on a Sunday morning with the lads, and it used to be frosted over in the morning, or snow. Whereas the last ten years there hasn't been any of that. And we have been on our own on a Sunday morning, but it hasn't had that impact as when we first used to come here.
Man: Used to shake the Christmas trees to get the snow off them to see what they were like, and it's quite noticeable that you don't get that now.
Woman: So in that period of time there has been a change.
Interviewer: When you're here and you look around, do you think that the place is well managed, then in terms of those aspects, management of the physical environment?
Man: It is well run but it's more commercialised now to what it used to be, certainly. We've always stopped here for something to eat before we start, clearly everybody's got to make a bit of a profit , so the costs have all gone up. We've noticed this year how much the tress have gone up. At the end of the day, I'm hoping the money goes back into the forestry commission. We've been here before when we've had the scouts helping out and other people helping out and clearly they're expecting a little bit of money to help out the various fundraising people. It's whether they're having to employ all these extra people. I've just worked 12 months at the Olympics, and you don't get volunteers coming and helping out at a place like this like you did at the Olympics.
Woman: The one point I'd lie to raise is that you don't see how much our contributions help, it would be nice to know from year to year, right ok with everyone's contributions right how many trees we've been able to plant, or we've been able to do this within Cannock Chase. We assume all the money's going back in here, but it would be nice to have something displayed. During 2012 we have managed to do this from all the money raised, something I think should be displayed really.
Man: To encourage people to come back. I mean we do it anyway, but it would be nice to say that that £35 pounds that we're probably gonna spend on a 5ft tree now, £30 of that is going back towards the Chase and the forestry commission to replant the trees, we're only using £5 to actually do everything else. It would be nice to know that, does it actually happen…
Woman: We don't know.
Interviewer: That's a good question.
Woman: 'Cause I mean like all these will be, all the fixtures and for these and the netting for the, that is, that's always been here once you've bought that then it's not the outlay per year that's what's actually happening.
Man: They would hire those in.
Woman: But as I say I'd like to know that.
Interviewer: Yeah that's interesting. I mean we're not working on behalf of the Chase, we've just got permission from the forestry commission to come here, but I mean I think anything like that would be useful to feedback. I mean they do their own

surveys but it would be useful to feedback in. Do you think other people who come here to use the Chase, different users groups, people who come cycling and whatever, do you think they all respect what's here?
Man: Hopefully they do, I mean we've been here on a Saturday and Sunday morning as we've said, and the other car park for chase users and the ones around abouts they're always absolutely full with bikers and walkers, so it is well used I know that for a fact, it is good to see the amount of people using it, it's similar to a Sutton Park from where we've come from.
Woman: And I would imagine, I mean they've actually in these last 12 months at Sutton Park, they've actually been putting signs up about. Obviously you see they're trying to do a lot of conservation there, and they've actually put signs up to show there's people working, there's obviously specialist teams that are helping to clear different parts of Sutton Park. Which is, it's really good, you know some things are best to just be left alone, but at some stages where I think it needs a tidy up to encourage the new growth to see what's actually up there. But obviously that all takes money doesn't it, and I assume, I can't remember what the sign is at Sutton Park, they are a particular group. I can't remember what it is, but they've obviously got the same interests as a lot who want to care for the environment, so they're doing it very sympathetically for the rest of Sutton Park. So that's it, the only thing I would say is like people with dogs, I wish they'd clear their mess up.
Interviewer: Yeah, yeah, is that something you notice?
Man: Oh yeah, yeah.
Woman: Certain parts, and especially if they do it, they let the dogs go, and they stand there and they actually watch them do it and you think, no, please, please tidy it up.
Man: I mean it wasn't so long ago they had an outbreak of something over here, I can't remember what it was, but we've just had an outbreak of E. coli in Sutton Park, and quite a few people were in hospital.
Woman: Young children in particular.
Man: Mainly young children, and it's obviously because of the dogs and the cattle that roam free on the area, and you know not picking up the waste. It's just laying on the grass.
Woman: That's what a park's there for, to take children to go and play.
Man: Everyone has to be responsible.
Interviewer: Have you seen that here, although maybe you've not been here that much?
Man: No.
Interviewer: But that's based on what happens there.
Woman: But as I say normally if we come here the dogs are on the lead, though they're not allowed to free, it's very rare that, and you actually see the dogs on their own, and I can't say I've ever seen…
Interviewer: Is that a requirement?
Man: I don't know for me. I mean in here it probably is, but you go to any of the car parks off the road, and they probably just jump out and go for it.
Interviewer: It's going to be quite difficult to manage that isn't it?
Man: Oh yeah, yeah.
Interviewer: But by the same token, it's whether people see it and don't do anything about it.
Man: Yeah, and it's a big open area.
Interviewer: Lovely, we've much longer than expected.

Woman: (Laughs) It's ok.
Interviewer: I mean the more we can get the merrier. Everyone's got a tale to tell, and that's what we want to get, so thank you.

10th Group: one woman in 60s (1), one man in 60s (1), one woman in 20s/30s (2) and her boyfriend (Man 2) with their young son of primary school age
Interviewer: Are you bothered about the environment at all? Do you have any concerns about it?
Man 1: What, the trees?
Interviewer: Erm, yeah. Or the environment generally? (food discussion).
Man 1: I think when they cut the trees down they plant more to make sure, so I don't know if it's impacting the environment.
Interviewer: Are you bothered yourselves about the environment? Do you do anything to protect it?
Woman 1: We do recycling, we recycle a lot of our waste.
Interviewer: So sort of day to day things?
Man 1: Yeah.
Woman 1: Put plastic in the bin.
Woman 2: You don't turn electricity off though do you my love.
Interviewer: My family don't do that so don't worry about it despite everything I try and say to get them to do it. How often do you come here to Cannock Chase?
Woman 1: Every year.
Interviewer: Every year, do you come here specially tonight?
Woman 1: Yeah, we've been coming here for about six years.
Interviewer: And is that to get a tree?
Woman 1: Yeah.
Interviewer: Ok so is it a bit of a tradition to come here?
Woman 1: It is yeah.
Interviewer: Is it a family thing, so you enjoy it?
Man 2: Yeah.
Interviewer: Is this your boyfriend?
Woman: Yeah.
Interviewer: Is there a particular reason why you come to get your tree from Cannock Chase?
Woman 1: We just like the drive and I don't know, just to come here to this spot.
Woman 2: 'cause there's lots of trees.
Interviewer: Ok, lots of trees here.
Woman 2: It's nice for the children as well when they see Santa they're given a small tree to plant, and we've got quite a few trees at home.
Interviewer: Yes, yes, yes.
Woman 2: Already planted, so it's nice.
Interviewer: Do we plant the tree and it regrows, is that the idea kind of behind it?
Unknown: Yeah, hopefully.
Interviewer: Apart from that do you come to Cannock Chase here at all?
Woman 2: No, it's a bit too far.
Interviewer: Ah right, where are you guys from?
Woman 2: Not far from Birmingham airport.
Interviewer: Oh right, so you have come a journey, this is a special trip out?
Woman 2: Yeah.

Interviewer: Oh, so apart from that Cannock Chase doesn't really mean very much to you at all, or?
Boy: It does to me.
Interviewer: What does it mean to you champ?
Boy: (something about food).
Interviewer: Oh ho, and I think you're getting excited this time of year aren't you? Ok that's fine, that's all we wanted to know. We get some people who come here fairly regularly and they come to do different things.
Woman 2: It's just nice.
Interviewer: It's just once that's fine and that lovely, but the fact that you keep coming back is something of interest to us.

11th Group: one woman, one man and their two young sons (older son of secondary school age – Son 1, younger son of primary school age – Son 2)
Interviewer: Ok, and you guys, if you want to say anything you're more than welcome as well. If I stick that on there is that ok. Thank you very much. Are you concerned about the environment at all?
Man and Woman: Yes.
Interviewer: In what way?
Man: Er, just with the waste side of it. Erm, recycling side of it, and what we consume as a nation.
Interviewer: So do you feel you can do something about that?
Man: Yes, you can do something about it, but only on a local, only on an independent level.
Interviewer: Yep, thank you. Do you think that, does that matter, does the environment matter more to you say 'cause you've got kids, or anything like that? Do you think about that?
Man: Yes, erm, sustainability, you know for the future. Recycling's got to be better than it is now.
Interviewer: Yeah absolutely, I'm with you on that. And my opinion as well, and I've got a step son, but I try to think, I've only just recently got married and the step son, yeah I'm now thinking wider than I used to do, as you can appreciate. Are you at Cannock Chase for a particular reason this evening, or do you normally come here, do you come here regularly?
Woman: We use the Chase on a regular basis, so like we've got two dogs as well as obviously the kids, and these are both outdoors. Matthew likes his cycling, so he'll be over here at silly o'clock in the dark with his dad and things.
Interviewer: (Laughs).
Woman: Yeah, no we're more outdoorsy than we're indoorsy, so we're often over here walking the dogs, and things like that, so.
Man: And it's local to us.
Interviewer: Oh right, so you only live around here.
Woman: Yeah.
Interviewer: How often would you say you, do you come here every week, every month, something like that?
Woman: Oh I'm actually here both on a Saturday and a Sunday, without fail, and then any time in between if I can get time off work as well. Obviously not so much this time of year as it's late, it's dark at night, but if I'm off work I'll come up and these pair'll do what they can of a weekend as well, so.
Interviewer: Yeah, so would you come cycling here with your mum, will you or…

Man: Yeah cycling is the…
Son 1: Yeah I do the mountain biking around the dog, and walkies.
Interviewer: Yeah, brilliant, so you come here and there's a couple of things happening when you come here, is it like that?
Woman: Yeah. This is the first time we've been up for a Christmas tree tough. So this is really a pleasant experience for us.
Interviewer: It's lovely actually, when you consider what Christmas markets are like and things like that, this is a nice little place, yeah. Are you getting a tree here for any reason, or is it just the fact that it's handy for you?
Woman: Er, no, they've got a good reputation round here. Matthew used to help up here years ago with the cubs, they used to do the carry outs to the cars and obviously raise funds for the cub group and that, so we've known about it, we just haven't got round to having a real tree ourselves, 'cause as I say, with having dogs, it's er, gonna be a test this year (laughs).
Interviewer: Yeah, go for it.
Woman: No, it's got a good reputation here for the trees and I say they've normally got something going on as well.
Interviewer: As I understand it, does some money for the trees go back to the erm, you know, do they plant new, do they use that to plant new trees?
Woman: I think they do, yeah. I don't know whether they're doing it this year, we've gotta find out on our way out, but they normally recycle the trees as well. You can bring them back up and they normally shred the trees as well, and you can either put the bark back on your garden, or they'll use it for car parks and things like that. So we've just got to clarify that this year.
Interviewer: Is that something that appeals to you then? You know, the fact that you can do that?
Man: Yeah, if it can be reused, and if they do put money to the forestry commission to keep planting, you know, and the upkeep.
Interviewer: Does Cannock Chase mean, is it a special place for you then? Does it mean anything to you, or is it just somewhere that you come like anywhere else that you'd come for so leisure?
Woman: Well we've been in the area, well we've been in Hednesford for 12 years now, so it's on our door step, and we like to use it for that reason.
Man: It is a place of beauty.
Woman: I was gonna say, there's just so much nature and everything. Different birds that we've seen and that is erm, Matthew thinks we're quite boring (laughs) but erm, but we do see a lot of different birds and wildlife and that up here and that is nice 'cause we've never seen it before. I mean it's only the last few years that we've seen deer, isn't it?
Son 2: It's a place to feel free as well, 'cause it's a big area, but you can go and walk on the Chase and bike and that.
Interviewer: Yeah, yeah. That's a nice, to say that to feel free, so what does that mean to you, when you say feel free, what do you?
Son 2: Like, it's a big space where you can, where creatures and that can live and that.
Interviewer: And you enjoy that? Yeah, good, good.
Man: He likes his animals.
Interviewer: Yes, yes, and you like your cycling (laughs). Do you think that you come here and you can do different things; they've got cyclists, they've got dog walkers,

they've got, you know people coming, do you think that's well managed, it all works well?
Woman: It does seem to work well, the areas I've done.
Man: The only times it doesn't work is when the owners don't look after their animals. But the actual way it's laid out, the paths…
Woman: The way it's maintained.
Man: yeah, you don't go trekking through somewhere that isn't marked. Yeah it's well managed, for the size of the area, it's well managed.
Interviewer: People respect it then?
Man: Exactly.
Interviewer: Lovely, do you come to different parts of the chase, or do you always come back here?
Woman: No I'm normally, if I'm doing the dog walking at the moment, I meet up with a bunch of friends, and we tend to do marquis drive as it's a bit less muddy underfoot. Yeah, I mean we go all over the place don't we. We do tend to vary where we walk and that. We do different ones don't you.
Son 1: If I come biking I do the dog, which is like in between here and Marquis Drive and there's a circle…
Man: But we've walked from here over to Brockton, haven't we.
Woman: Yes.
Man: Which is up by Shugborough Hall, which is a few mile, so you come out there.
Son 2: It's where cubs come.
Interviewer: Ah, you're here with the cubs then. Just to ask the boys here, do you worry about the environment? Does it bother you? Is it something you learn about at school and…
Son 1: It is a big thing that we have been taught about at school. Geography and that is stressing on it all the time. Then we've like different things, of hearing that it's global warming and an idea that's been flawed by like many scientists and that sort of thing is them sort of thinking, well have I just like wasted, you've got the grade out at the end of it but all that thing you've just been told is it all a load of baloney (laughs).
Interviewer: yeah, because you don't know if it's true or not, and everything like that.
Son 1: Theories are just made up like that, and my teacher sometimes, biology teacher, will get sort of like, she mentioned it once and she got quite wound up about it, like theories that are like exploded over tiny bits of evidence, and like everyone was being taught it at school so, it was a major thing we was taught. Not specifically the change, but the global warming as a whole and that sort of stuff.
Interviewer: I mean I work at the university and teach, so the angle I come from is that, yeah there are the doubters and we don't know but surely it's better to do something than nothing, so, but absolutely it is confusing, I do agree with you there. Lovely.
Son 2: Usually we come on school trips and that as well, which makes it better for school.
Interviewer: And you enjoy coming here? Even though you been here apart from that, you still enjoy coming on school trips. Yeah, good, good. So if you guys stayed here in the future, would you come back here, would it be a place that you'd come and visit? You enjoy with him, and mum and dad and whatever?
Son 1: Yeah.
Man: Especially in the summer.

Interviewer: Yeah, I was gonna say, it's not the ideal time. Well the interesting thing for us is that people are coming here tonight 'cause of an event. Some things happening and it's different.
Man: It is very nice.
Interviewer: Yeah that's lovely. I'll leave you in peace. Thank you for your time.

12th Group: one woman, one man and young children of primary school age
Interviewer: Are you bothered about the environment, are you concerned about the environment?
Man: In some respects yeah, I think so. Especially when we've got this on our doorstep. It'd just be a shame to lose it. To cut the trees down and destroy this, yeah it'd just kind of be wrong.
Interviewer: So you live, are you local to here?
Woman: We are yeah.
Man: This is kind of my weekend playground, for mountain bikers.
Interviewer: Ah, ok, so have you moved here because of that or because of the Chase?
Man: No, we were local, suffered as house prices have got more expensive, we've migrated away from home and into this. Couldn't be happier.
Interviewer: Smashing, and the kids are happy as well?
Woman: Oh yes, they love it, mooching around. It's just nice for them to be free and just do what they want.
Child 1: Especially looking at the trees.
Interviewer: Ah, so they can do that here then. Is that freedom important?
Woman: Yes it is, yeah, definitely. Yeah, it's nice for them to adventure and see what's out there really.
Interviewer: And do you think that you wouldn't maybe get that in a normal, urban environment?
Woman: Not at all. No.
Man: Definitely not. They are lucky in that respect that we are so close, that this is on our doorstep. If we lived, kind of, centre of Brum, they wouldn't have this, wouldn't experience it.
Interviewer: Yeah. Do you feel more concerned about the environment because you've got your children? Do you think of the future and their, sort of, children's children, that kind of thing?
Man: Not really. It's more the here and now, and what we've got we experience now, rather than the future. I know the future's important, yeah.
Interviewer: Do you do anything at all to protect the environment? Do you recycle or…
Man: Yeah, we recycle, and I think that's kind of as far as we go to be honest.
Interviewer: But that's fair, people do that, that's something.
Man: Yeah, it's a start.
Interviewer: When you come here to Cannock Chase then, is it, it sounds like it's a special place, in some ways. Or…
Man: It's a special place for the family as we come over and we've got the nature trail and as she said the kids just love to disappear and roam and whatever. I come over here as, I refer to it as when you reset the mileage on your car, its stress reliever. Being in the middle of Sherbrook valley and just me and a couple of mates and the only sound around is a cuckoo. It just, argh, you can't get any better.

Woman: It's a bit of freedom isn't it, you get away from all the hustle and bustle. It's just lovely, lovely and peaceful. You love coming, don't you.
Interviewer: So it's special to you as a place for family but also as a place for you to come on your own, and to do your thing. Why have you come here tonight then, is there a particular reason?
Man: To see Father Christmas.
Interviewer: Ok, so you've got the kids.
Man: Also to, we've been on about having a proper tree. Just come up to see what's about. You say something magical, there's something magical about the Chase at night. It's nice during the day, but I come over night riding. It just changes everything. And in the night in the snow, absolutely perfect.
Interviewer: You paint a lovely picture of it, you're here fairly regularly then, every week?
Woman: Yeah, you're on your bike every week. Then the girls come up when we can, don't we girls.
Man: Try and come up once a month with the girls. 'Cause of family commitments and whatever, it's nice to go running about and…
Woman: And bring the dog up.
Man: the coffee's pretty good as well.
Interviewer: I've had the chocolate tonight 'cause I wanted a hot drink and I'm not complaining, yeah. Do you think that it's well managed then , as you come cycling, you come in with kids and dog walkers are coming here. Does that work well, that all these different people can come here?
Man: There's always conflict. There's the mountain bikers against the walkers, against the horse riders. It's everybody's playground, everybody's responsibility to look after each other.
Woman: It's always clean and tidy though, that's one thing you can't fault. It's always clean and tidy. So you've got no rubbish anywhere, it's just kept nice and tidy.
Man: I know some people struggle with, because it's a managed forest, the cheeky trails that don't exist, when they get trashed by either rider, well, the forestry commission, 'cause they have to cut the trees down, walkers who sabotage stuff.
Interviewer: What's that, a cheeky trail?
Man: Officially on Cannock Chase there's two mountain bike trails, there's follow the dog and the monkey trail. But everybody knows there's other stuff around. It's locally referred to as the cheeky trails. It's like deer runs that have been found by bikers and used. Some of the walkers don't like that 'cause as they see that we're destroying their Chase, so, as I say, it's everybody's playground. We've all got to get on with each other.
Interviewer: I mean I don't know if you use the cheeky trails, but do you feel like if you use the cheeky trails that you are (unclear)?
Man: No because the Chase evolves. It's natural, where one week there's a fantastic trail, the next week it might be that the weather's trashed it, or too many riders have used it, or the forestry have found it and brashed it off. It evolves, and it just keeps the place fresh.
Interviewer: No, you obviously enjoy it very much.

<u>13th Group: one woman and one man</u>
Interviewer: Are you bothered about the environment at all? Does it concern you?
Man: Er, yeah, I think so to a certain degree, yeah.

Woman: We do recycling and that, yeah, so yeah.
Interviewer: And that's what I'm hearing from a lot of people. Is that a local thing here, is there a lot of pressure on you to do that?
Woman: Not particularly, I don't think so.
Man: You recycle your waste don't you. I work with recycled stuff so you know, you have a zero waste policy kind of thing.
Interviewer: Is that fairly easy for you to do, do you do it? You're happy to do it?
Woman: Yeah, absolutely.
Interviewer: Apart from that, and there's no rights or wrongs, apart from that does anything else bother you. Do you think about global warming or those types of things?
Man: Not a lot.
Woman: No not normally, really
Interviewer: It's more the daily things?
Woman: Yeah. There's not a lot you can do.
Man: Not much you can do with the great, the bigger countries. You know I don't think what we do will make a lot of difference. That's my opinion.
Interviewer: yeah, but by doing the recycling…
Woman: We're doing our little bit yeah.
Man: Like China, building a power station every week.
Interviewer: There's a lot of things out of your control. Why have you come to Cannock Chase here tonight?
Woman and Man: To buy a Christmas tree.
Interviewer: Ah, ok. Do you always come here for the tree?
Woman: We always have one every year. Yeah. Well it all goes back in, the money, doesn't it.
Man: Hopefully, I don't know, is that right is it, the money does go back in?
Interviewer: Everything raised goes back into the forestry commission, yes.
Woman: We walk the dog, we've got a dog, and we walk the dog around Cannock Chase as well.
Interviewer: Do you live local?
Both: Yeah.
Man: A few miles away.
Interviewer: Ok, so you come for a tree, is this something you do every year then?
Woman: Yeah.
Man: First time we've had a drink though.
Interviewer: Well, I've had a chocolate and it's lovely but was expensive. But it was nice. Does the fact that the money does go back, you'd rather do that than go somewhere else.
Both: Yeah.
Interviewer: How often apart from that do you come to Cannock Chase then, are you here regularly?
Man: Every other day.
Woman: Nearly every day with the dog.
Man: About every other day, average.
Interviewer: So you like coming here?
Man: Yeah it's ok, yeah.
Interviewer: Does it mean, is it a special place for you then, Cannock Chase?
Woman: It is with the dog. Summer or winter, lovely.

Man: Yeah. The dog can be run off, let off, and it's quite a nice environment, it's quiet, you know. Not a lot of people when we go at night as well.
Interviewer: Would you come here, you can come and go as I please here I guess. Would you come here at this time of night?
Woman: Yeah, we do bring the dog.
Man: Midnight.
Woman: And new year's eve we do as well.
Interviewer: Oh, fantastic.
Woman: We always come up new year's eve and watch all the fireworks. We always go up and watch all the fireworks around Rugeley.
Man: We're not big drinkers.
Interviewer: It's lovely, and you get out and come out here. In your free time, do you like to get out and come somewhere like this?
Woman: And on our bike, we get out on our bike as well, and our son's bike up here as well.
Man: Our son's do, they're 30 you know, kind of thing.
Woman: So it's a family thing really, they do it as well.
Interviewer: So coming here, walking the dog, coming on your bikes, do you think the place is well managed? Do they look after, do they allow for different groups of people to use it?
Man: Yeah, I mean generally I suppose, when they have that, they have an exhibition up here every 3 years, forestry from all over the world they come. They display forestry machinery.
Woman: Wood cutting and all that kind of thing.
Man: But sometimes they don't clean up quick enough, the area. They put it back, but there's a lot of ruts and places they could do a little bit better putting it back as it was. But generally they're alright.
Interviewer: Someone else I was just talking to thought maybe there was maybe some conflicts between user groups, you know between people on bikes and walking and horse riders.
Woman: Well we've never really had any trouble have we from people on bikes.
Man: No.
Woman: I say sometimes you come up at this time of night and they haven't got the lights on and that but…
Man: but there's plenty of space for everyone. Bikers, walkers, runners. There's plenty of space
Interviewer: it allows for everybody.
Man: Yeah, if there's someone coming towards you, you can go the other way can't you. If you want to.
Woman: You just put the dog on the lead. @Cause she's a German Shepherd and she's a big dog. We wouldn't want her running and someone coming off their bike. We can call her back and put her on the lead 'til they've gone by.
Interviewer: Do you have any bother with litter or anything like that?
Woman: No. There is the odd bottle sometime.
Man: Bits of litter about…
Woman: We picked it up didn't we and brought it back to a bin.
Man: They need a few more bins, strategically placed on the corners of junctions, paths. It's pretty decent.
Interviewer: But it's a place you like to come to. You enjoy?
Woman: Oh yeah.

Man: It's only 2 miles away from our house so it's alright.
Interviewer: Do you drive here then?
Man: Drive yeah.
Interviewer: Dog's in the car?
Woman: Yeah in the back.
Interviewer: Done, that's lovely, thank you.

14th Group: two women and one man

Interviewer: Are you bothered about the environment at all. There's no right or wrong answers here.
Woman 1: Yes.
Interviewer: In what way?
Woman 1: I don't know, just generally bothered about what we do and how we live. But I think my biggest issue is that you worrying what an impact you can do, which is just a single person. Which is stupid 'cause I know a lot of other people that do, but I do try and be really good, with my water and recycling and everything else.
Interviewer: So you're doing things that you can sort of manage yourselves and manage locally.
Woman 1: Yeah
Interviewer: When you come to Cannock Chase is the environment one of the things that attracts you here?
Man: It's on our door step.
Interviewer: Ah you live locally.
Woman 1: Yes.
Man: We grew up right on the outskirts, which is normal to us, I know a lot of people find it weird here, 'cause they've never seen it have they.
Interviewer: No not at all. So you come here quite a lot then, is it walking?
Man: Dog walking. I think I've been going to the Chase since I was born, really.
Interviewer: How often do you come here then?
Woman 1: We very much anymore.
Man: Yeah, 'cause we haven't got a dog.
Interviewer: Ah right, so was it the dog that brought you here?
Man: When I'd got a dog, weekly.
Woman 1: But now we don't ever.
Man We took your mom's dog about two months ago.
Woman 1: Yeah, it's only for dog walking.
Interviewer: So was it a special place to come then for you, for the dog? How would you feel about it apart from that?
Woman 1: I'd love to, I'm just lazy. That's all.
Man: I'm proud of the Chase.
Woman 1: I drive round the Chase when it's autumn and it's all orange. I love that and I take photographs. Then I think, oh I'll come for a nice walk then, don't.
Man: Where I work I'm the only person from round here, and I'm proud of the Chase. If anyone says where's Cannock about, I'll say the Chase. And I always tell people to come down here and have a walk around.
Interviewer: Do you think the Chase is well managed? With what they do here?
Man: This bit is, obviously most is just rural and natural. Which is quite nice as well, I'd hate it if it was all manned all.
Woman 1: The camping bit's nice.

Man: We did have someone's birthday.
Interviewer: So you come here for maybe a social occasion?
Woman 1: We come every year for Christmas.
Woman 2: We did have a barbeque as well.
Interviewer: Are you here tonight for a special reason?
Woman 1: Just 'cause it's Christmas, to get a tree, come every year, tradition. Have a drink.
Interviewer: (briefly discusses Cardiff fieldtrip). You come here dog walking, you come here at Christmas, do you think they get it right here in terms of how they manage people coming here for different reasons?
Man: It's too big to manage isn't it. You can go anywhere, you can drive for miles and there's hundreds and hundreds of miles of Cannock Chase I've never seen, and never will. So it's hard to manage that, but with little bits like this, and that activity playground thing over there, it's brilliant.
Interviewer: Do you go to other bits then, Marquis Drive?
Woman 1: Yeah, that's where we go for barbeques, Marquis Drive.
Man: Milford Common, which is on the outskirts of it. And just little parks everywhere. Just little car parks you can take your dog when you get there.
Interviewer: How did you get here tonight then, do you drive?
Woman 1: You drove didn't you (to man).
Man: Yeah, too far to walk even though it's on our door step. 'Cause we live four miles away.
Woman 1: It's a bit dark.
Interviewer: Lovely.

10/04/13 Marquis Drive

1st Group: grandmother (GM), daughter (D) and son-in-law (S), couple's two young children of primary school age

Interviewer: First of all, does the environment bother or concern you?
GM: In general?
Interviewer: In general like. What are your feelings about the environment?
D: We do our bit to maintain it and improve it.
GM: I'm a big one for recycling, and climate change thing worries you doesn't it, when you see programs about the arctic-circle and the polar ice cap melting, polar bears and penguins, habitats disappearing.
Interviewer: Do you do anything to protect the environment in your everyday life? What kind of things?
D: Recycle.
GM: Yeah, recycle.
D: Changing my car.
GM: Composting.
D: To enable us to be better with our fuel consumption.
Interviewer: So everyday things and a bit extra with the car.
D: Yeah.
Interviewer: Do environmental issues alter how you spend your leisure time? Is there a focus on the environment?

GM: I don't travel as far as I would have done in the past because of the fuel consumption thing. But that's price more than anything else I suppose. It's been cold for a long time, hasn't it, so that sort of thing.
Interviewer: How often do you visit the Chase? Is it frequent, or?
D: We live in Shropshire now. So no not that frequent.
GM: And I live in Derbyshire. So we've met up.
D: We probably come here about three times a year. We used to live in Birmingham, and came here weekly probably.
Interviewer: Which areas is it that you visit? Is it mostly Birches Valley?
D: Yeah it is.
Interviewer: Or is it any of the other sites?
D: No, here for the café and facilities.
Interviewer: What do you do when you're on site? Is it walking, or cycling, or?
D: Mainly the walking. We've used the Go Ape centres, and the segways.
Interviewer: As there are lot user groups on the site, like with cyclists and walkers and various others, have you noticed any conflicts between the user groups at all?
D: No.
GM: No. There was a bag of dog poo that wasn't very nice that one of the children tried to pick up. As a dog owner I was pretty disgusted at that. There should be dog bins around, if you're inviting dogs on to the site there should be, they should make facilities available. That made me a bit cross about that.
Interviewer: Does the Chase have any special, emotional significance for you, or like a traditional?
GM: We used to come when you were all babies, not this particular bit of the Chase, and we came with sort of relatives who now aren't with us, so yeah it does to a certain extent.
Interviewer: And lastly, do you think that the Chase is well managed?
GM: Yeah we were saying with Barry.
D: Yeah and we're quite happy to pay the car parking 'cause it is so well managed.
GM: And they've used all this environment it's still really natural, but there's stuff to do, and the children have loved it, without harming the actual environment you know. There's not great big awful plastic frogs or dinosaurs you know, it's all done really sympathetically to the environment.

2nd Group: grandfather (GF), son (S), daughter-in-law (D) couple's two young children of primary school age

Interviewer: First of all, does the environment bother or concern you at all?
S: Yeah, yeah as in the young kids yeah.
Interviewer: Is it important to you in your everyday life?
S: It is in that I try not to drive too much and things like that, you know, as much as you can.
Interviewer: Do you do anything to protect the environment?
S: We recycle, we've got two recycling bins, they're both full about four days before they're due to be collected. And like I said, we try not to drive too much, we've got a small car so they don't produce too much CO2 and stuff
Interviewer: So it's kind of everyday things?
S: Yeah, I don't go out of my way to do anything different.
Interviewer: Do environmental issues alter how you spend your leisure time?
S: Not particularly, I have to be honest.

GF: Well with two young kids you tend to try this sort of thing, more outdoor activities than indoor activities.
(D joins group)
Interviewer: Does the environment bother or concern you at all?
D: That's a difficult one.
S: The kids.
D: You want them to be able to go out, and go to explore it.
S: That's why this is a good place.
Interviewer: Do you do anything to protect the environment?
S: Loads of recycling.
Interviewer: Do environmental issues alter how you spend your leisure time?
S: Dad would like to have a place like this to walk around, fresh air and stuff.
D: It's nice to just be able to go out and
S: Have a wander round.
GF: We like farms and that locally that do things for the kiddies. Support them, 'cause they're struggling 'n' all. They're sort of nature things.
Interviewer: How often do you visit Cannock Chase?
GF: Well you live by it don't you.
S: Well this part of it we don't visit particularly often. We tend to go to Milford by Stafford and park up and have a wander round it that way. In the summer we like to go out a few times a month up there if we can.
Interviewer: So is it mostly Milford more often and this is one of the rare visits?
S: Yeah, maybe 'cause Milford's closer and it's just easier to get there, get the kids and whizz 'em round.
Interviewer: Are there any other parts of Cannock Chase that you visit as well as?
S: I'd say it's mainly that one isn't it.
Interviewer: So I take it that you live very local to Cannock Chase then?
S: We live at Stafford.
Interviewer: When you're on site, what do you do? Is it like walking, cycling?
S: Walking, the kids like picking up the cones and playing with them. Bits and bobs, you know normal things the kids like to do. And we go camping as well, not on Cannock Chase though. As a holiday, we tend to go camping.
Interviewer: Have you ever noticed any conflicts between the different user groups on site?
S: The horse riders and cyclists tend to argue with each other, but we just keep away from it. Cyclists, they're in their own little world aren't they.
D: I think some cyclists think they have more right of way than they should have. To put it politely.
Interviewer: Does the Chase have any special or emotional significance for you, like a tradition, or reason for coming here?
S: It's just a nice open space.
D: We like to do the walks.
S: The hospice walk which starts at Milford.
GF: That's the café hospice.
S: But as for emotional, there's not particularly emotional link, it's just nice. We tend to like it, to get the fresh air.
D: To get outside.
Interviewer: And lastly, do you think that the Chase is well managed?
S: Yeah, the bits we've been to. Obviously, we've only been to little areas, it seems very well organised. I mean this is particularly well organised and well run.

D: This is extremely well. There's a lot to do here.
S: I'd definitely come back again. I mean, it's only 15-20mins down the road. Lots of seats to sit down on.
GF: Plenty of seats for the old ones as well.
D: Here they don't seem to have as much cross over with bikes and horses and things, like they are in Milford.
S: I think they're more separate here. (Milford) it's more narrow, they fall over each other.
D: You go for a little walk or you're pushing the thing or something and you've got about forty different bikes.
S: Especially when you've got this one and it's a bit rickety (pushchair).
D: It's a bit sort of…
Interviewer: Hair raising?
S: It can be, ha ha. Well here I say it seems a bit more organised.
D: I do feel sometimes, they (cyclists) seem to think they have more, this is mine, well no it should be everybody's.
S: Cause we tend to walk anyway.
D: And maybe there should be areas where…
GF: It's more segregated.
D: Yeah, and it's more safer if you're walking this way, or if you want to go that way, go up that way. I don't give abuse. I work with a keen cyclist, so I know.
S: This is a very well sorted place.
D: This is a very nice place, I'd definitely come back again.
(Note: 10/04/13 2nd Group bought a Christmas tree from a site near to Cannock Chase AONB. Group enjoys the free facilities at Birches Valley)

3rd Group: young father in 20s/30s (M) and his two young children boy and girl of primary school age
Interviewer: First of all, does the environment bother or concern you at all?
M: Yeah it does.
Interviewer: In what, way are there any specific things?
M: Yeah I think we've got a responsibility to look after it. I didn't obviously before I had children. Interestingly, I spend more time outside now than I probably did since I was a child. With these, it does make me think.
Interviewer: Also, do you do anything to protect the environment in your everyday life?
M: Er, yeah I'm quite an avid recycler as far as the council, but that's about as far as it foes really.
Interviewer: So everyday kind of things?
M: Yeah. You know I do put a bit extra effort in to recycle for the local authority.
Interviewer: Do environmental issues alter how you spend your leisure time?
M: No, not really. Yes and no. If this was filled with rubbish or it wasn't here then I wouldn't be here, but it is and I am.
Interviewer: How often do you visit Cannock Chase?
M: Once a month, once every four weeks, once every six weeks.
Interviewer: Which do you usually visit?
M: This bit (Birches Valley), the play area, within sort of a mile and a half, two miles of the car park, Birches Valley.
Interviewer: Never anywhere further afield?

M: It's the kids you see, I'd like to, but maybe when they get a little bit bigger.
Interviewer: Do you live locally to the Chase?
M: Telford.
Interviewer: When you're on site, what do you do? Is it like walking?
M: Walking, cycling, using the facilities.
Interviewer: Like the play area?
M: Yeah.
Interviewer: As there's a few different user groups on the site, have you ever noticed any conflicts between the different user groups?
M: While I've been mountain biking here, I have noticed people have taken entire families the wrong way up the trails, and they're clearly marked, it's just a danger point of view really, but nothing sort of threatening the environment really. From a safety point of view then yeah I have had to have a word with some of the walkers.
Interviewer: Have you ever noticed any conflicts between user groups that you're not a part of.
M: No.
Interviewer: Does the Chase have any special or emotional significance for you, like a traditional thing?
M: I was in the scouts and I came here years and years ago in the scouts when I was about eight years old and I stayed in a deer hide and we had a big commando bridge and that type of thing, and that sticks out in my mind. I guess when I think of Cannock, I think of that, but other than that I just think of it as a biking route.
Interviewer: And finally, do you think that the Chase is well managed?
M: Yeah, I think this, coming from Telford where we've got the Wrekin and the Arckle, if they could do something like this to accommodate walkers, cyclists and everything in between they'd make a killing, they really would, it would be a much better managed area It would be fantastic on a national sort of level. This place, with the forestry commission, the bike shop, the Go Ape and the café, and the council, it's the perfect blend really. If more local authorities looked at doing things like this, it would be a better place.

4th Group: retired man (M) and his two dogs
Interviewer: First of all, does the environment bother or concern you at all?
M: In what respect?
Interviewer: I suppose it mean, is it important to you, do you actively try and help the environment?
M: Oh yeah. We're quite green as a family.
Interviewer: What kind of things?
M: Well we recycle.
Interviewer: DO you do anything else as well?
M: No. We do nothing else proactive other than recycle. We don't throw litter down, you know that sort of thing.
Interviewer: So every day kind of things?
M: Yeah.
Interviewer: Do environmental issues alter how you spend your leisure time? Does it influence what you will do or what you won't do?
M: Well generally, we're either up here with the dogs or we've got a caravan down in Wales that we go to, so we like being outside.

Interviewer: The environment doesn't stop you from doing what you want to do, or would it limit it?
M: No not really. We're fortunate here because we've got Cannock Chase. We used to live up Stoke way and it wasn't so easy to go out into the country side. You could get out into the country side but walking the dogs was difficult, because it's dog friendly here.
Interviewer: How often do you visit Cannock Chase?
M: Every day, generally.
Interviewer: Which areas do you usually go to?
M: I normally go here or to the end of Slitting Mill and go up to the fishing ponds. So it's generally this area here.
Interviewer: Have you ever been to some of the other sites perhaps on a more rare frequency?
M: We've been up to the top of the Chase, the top here, but not off.
Interviewer: Usually around Birches Valley?
M: That's right.
Interviewer: So do you live locally to the Chase?
M: Yeah, at Rugeley.
Interviewer: Have you ever noticed any conflicts between the different user groups on site?
M: Yes, cyclists seem to think they own the place, particularly where it's joint footpaths. Where you've got a lot of footpaths that are joint cyclists with pedestrians, and they seem to think they've got priority. Not all the time, not all of them. But some do.
Interviewer: When you're on site, what do you do? I take it you do dog walking?
M: Walking. I walk and sit. And cycle, I cycle myself.
Interviewer: Does the Chase have any special or emotional significance for you, like a tradition, or reason for coming here?
M: Well no, we've only been coming here five years because we've only lived in Rugeley for ten, but we've only had dogs about five years.
Interviewer: And lastly, do you think that the Chase is well managed?
M: I think it's superbly managed, I think they're very good particularly with wildlife, cause they don't try putting nesting boxes up, they leave it wild. So I think it's brilliant how they do that.

5th Group: one woman and one man in their 40s (W and M) with their two young sons of primary school age
Interviewer: First of all, does the environment bother or concern you at all? Is it important to you at all?
M: Well the environment is important to everybody. In what respect do you mean? For example a built up environment is important if you're working in the city.
Interviewer: I suppose green kind of issues, environmental issues, like would you go out of your way to protect the environment?
W: I suppose it depends upon where it is and what's there.
Interviewer: So for example, Cannock Chase, is the environment important to you.
W: It wouldn't be that important no cause we're not from, well we are reasonably local but there are places that would be that local to us that we'd be more concerned about.

M: We're about thirty odd miles away. We've just come for the day, or the afternoon to be fair.
Interviewer: Would you do anything to protect the environment?
M: What like swampy did?
Interviewer: I suppose like every day kind of stuff, like recycling up to anything bigger, is that something that you'd do?
W: Yeah, we certainly do the recycling, yeah anything we can do, we do. We've got two young children, so time is of the essence with your everyday stuff. Yeah.
Interviewer: Would you go any further than everyday stuff?
W: Probably not at the moment no.
Interviewer: Would it be a future consideration?
W: Probably, yeah when these get a little bit older.
Interviewer: Do environmental issues alter how you spend your leisure time? Would you mould what you had planned with a mind to environment? Or would you just do what you wanted?
M: I'd do what I want.
W: Yeah, we like to take the kids out as much as possible to go…
M: IN to the countryside.
W: Yeah, but no, not environmental issues as such.
Interviewer: How often do you visit Cannock Chase?
W: Most school holidays, at least once during the holidays.
Interviewer: And is it always to this site or?
W: This site. Cause it's a park and there's the mile walk, and things are on the walk.
M: And this is programmed into the satnav so she can find the car park, ha ha.
Interviewer: When you're on site, what do you do?
W: It's just the park and they small walk that's for the children. As they're getting a little bit older now we'll look to do a little bit more. We're talking about getting one of the maps to do some more of the cycle stuff to do as a family.
Interviewer: Have you ever noticed any conflicts between the different user groups on site? Have you encountered any?
W: Certainly not, no, certainly not come across any.
M: I suppose people that like to walk are going to moan like buggery about the cyclists, and the cyclists who enjoy whizzing around quite quickly are going to moan, I don't suppose they will moan really about pedestrians as they'll just go flying past. The fact is, everybody's getting something out of it, and that's important. And I would imagine walkers are more likely to moan about cyclists than the other way around, cause the walkers are doing nothing but walking, cyclists have got something else to occupy their minds. Their only objective is to avoid the pedestrians. But as long as everybody keeps their eyes open it'll be alright. You've got special cycle tracks anyway, I haven't come across any cyclists, except these two (children), which I'd rather were cycling somewhere else.
Interviewer: Does the Chase have any special or emotional significance for you, like a tradition, or reason for coming here?
W: No, I just think it's very beautiful the way they've done it for the kids, for families and stuff. That's the reason that we come, it's just a really nice sort of walk that they can, that we can all do together. You can even bring your grandparents cause it's just a nice distance for them to walk.
M: Yeah, maybe I'll bring my parents with me next time, ha ha.
Interviewer: And lastly, do you think that the Chase is well managed?

W: Certainly appears to be to me. But as say I've not seen a great deal of it, we only see a very small part of it. The part we see is very nice.
M: If it's anything like the bit we see, the rest of it, it's incredibly well managed. I think it's a super place.

6th Group: young man and woman in 20s/30s (M and W) with their two young daughters of primary school age
Interviewer: First of all, does the environment bother or concern you at all? Kind of green environment?
W: No.
M: AS in damage to the environment?
Interviewer: Yeah, so is it important to you to protect it?.
W: Oh I see, beg your pardon.
W and M: Yes.
W: Yes he does, yes.
Interviewer: What kind of things do you do?
W: We recycle, we compost, we try and switch things off standby to conserve energy at home, we insulated our walls, yeah anything really, all that kind of stuff.
Interviewer: Would you go anything bigger, like would you go and invest in a hybrid car?
M: Not a hybrid, because I'm not convinced that hybrids are more economical, however we have just changed our petrol car for a diesel, an efficient diesel, cause I travel quite a lot, and so we've got a car that does a good mpg for that reason.
W: And we would consider solar panels and that sort of thing if we were going to stay longer term in our house but we're not so. If we knew we were going to stay somewhere we definitely would thing about all that sort of thing. Yeah.
Interviewer: So at the moment is sort of everyday kind of things, like the recycling?
M: Yeah and we had our walls cavity filled.
Interviewer: Do environmental issues alter how you spend your leisure time? Would you do something or would limit it to take into account the environment?
W: I'm not sure.
M: That's a tricky one.
W: I'm not sure we limit our leisure activities because of environmental issues, I don't think our leisure activities particularly impact on it. We don't drive a lot or that sort of thing, or fly.
Interviewer: How often do you visit the Chase?
M: Probably once a quarter.
W: Probably once every two or three months.
Interviewer: Which areas do you usually go to?
M: Mainly this one because of the walk with the sculptures and the fairy houses particularly, which we always have to visit.
W: And the play areas cause of the little ones. When they're older it would be great to go and explore the rest.
M: Yeah and we'll bring them cycling.
W: We've been to the Stepping Stones bit a couple of times.
Interviewer: Do you live locally?
W: No, we live in Aldridge.
M: Walsall, so 20mins away.
Interviewer: When you're on site, what do you do? Is it like walking, cycling?

M: Yeah, walking, children's play area, eating ice cream.
Interviewer: Yeah, the facilities are really handy here.
M: They are really good yeah.
Interviewer: Do you think there are any conflicts between the different user groups on site? Have you experienced any or seen it in other groups?
W: No, we've not.
M: I think it's nice you've got a good mix of activities that people like to engage in; young families, cyclists, and then all the activities, the Go Ape activities. I think it's good, I think it makes it a more healthy tourist offer, I suppose.
Interviewer: Does the Chase have any special or emotional significance for you, like a tradition, or reason for coming here?
W: Not for me.
M: Yeah we used to come as a family, so my parents always used to bring me and my sister and we would come probably fairly regularly, and we would always bring a thermos flask of soup, and mom and my sister would always have the vegetable and my dad and I would always have tomato, and we'd come sledging here and walking here.
Interviewer: So frequent from that traditional aspect:
M: Yeah, normally to the Stepping Stones, and we'd normally come for the day and bring a picnic.
Interviewer: And lastly, do you think that the Chase is well managed?
W: Yeah, the bits of it I've seen are well managed.
M: Yeah, having just come back from Armenia, and seeing the equivalent tourist attractions they have, is very well managed.
Interviewer: What kind of things do you think the Council and Forestry Commission are doing well here?
W: I think things like this are really good, so like having toilet facilities and a little café, I think that's great, and the play areas, because with us and young kids you need that. We wouldn't be able to come for any prolonged period of time without those facilities.
M: And having the sculptures and things to interest the kids, which a walk probably wouldn't cut it for them, but that there are things to do, and the big chairs to sit on and the dens to build.
W: And the roads are well managed round here and the way a lot of the parking is managed I think it's pretty good.

7th Group: mature couple in 50s/60s (M and W)
Interviewer: First of all, does the environment bother or concern you at all? The green kind of environment?
M: The lack of it or too much of it? Yes it does, I suppose so.
Interviewer: The green kind of aspect, is it important to you to try and protect it?
W: Yeah, I think so.
Interviewer: What kind of things do you do to protect it? So for example, everyday stuff like recycling?
W: Oh yes we do recycling.
Interviewer: And a bigger scale as well? What kind of things do you do?
M: Loads of recycling and we've got a big garden with lots of trees in.
W: We are looking at solar energy aren't we. But I don't think we do a lot else do we?
M: No.

Interviewer: So for electricity do you limit what you use?
W: We do, but we've got two sons who probably don't.
M: We use low energy light bulbs and switch stuff off that we don't need. We do.
Interviewer: Do environmental issues alter how you spend your leisure time? Will it prevent you doing something?
W and M: No.
W: Unfortunately no.
Interviewer: How often do you visit Cannock Chase?
W: This is the first time in years.
M: First time in a long time. Not very often basically.
Interviewer: When you di used to come, which areas do you usually go to?
M: Milford.
W: I used to go to Milford when I was a kid, sledging on the common on the hills there. Seven Springs when we were kids.
M: We live in Stafford.
Interviewer: When you're on site, what do you do? Is it like walking, cycling?
W: Only walking. Our son used to do mountain biking when he was younger, and the other one's just discovered this bit and the Segway thing, but they haven't done it yet.
M: No, just walking.
Interviewer: Do you think there are any conflicts between the different user groups on site from what you've seen?
M: What kind of user groups?
Interviewer: Like the cyclers and walkers and dog walkers, horse riders and fishermen.
W: The one thing that has really got to me is the number of bags of dog poo in them, thrown on the paths and being cycled over. There's loads of that isn't there. We should have a game of spot the bag of dog poo.
M: I can't see any conflicts between walkers and cyclists. But dog owners need a kick up the backside.
W: Yeah, should take their stuff and put it in wherever the bins are. I don't know why they bother putting it in a bag, if they just drop the bag. That's my biggest gripe.
Interviewer: Also, I'm guessing there's some emotional, traditional kind of significance for you, coming here sledging, so is there any for yourself also (to M)?
W: Yeah.
M: No.
W: Weren't you ever brought here as a child? Your mum didn't have a car did she?
M: She did have a car, but no. Used to go to Milford, and to Seven Springs, that's it. When I was a kid this wasn't developed.
W: This is where they had the Christmas trees.
M: Proper forestry commission stuff.
W: Our boys were brought here to see Santa and get the trees when they were little.
Interviewer: And finally, do you think that the Chase is well managed?
W: I don't know really.
M: It seems to be it's hard for us to say really.
W: We've been to Yosemite which is where they have the bog trees in America, and I think maybe they could make more of that, they have a train that people go on, I don't know whether they have that here. I suppose they haven't go the enormous trees they have there.
M: It's a bit bigger as well.

W: Yeah but there must be points of interest, maybe they haven't got the access to do it.
Interviewer: As you think it is well managed, what things do you think they do well here? So for example, the facilities or the car park?
M: Yeah the facilities are good here, and the walks are well sign posted. Generally it seems pretty well managed.
W: Yes we don't come that often do we. I think it's good the things they do, the concerts to raise money.
M: Yeah, we're newbies.

8th Group: mature couple in 60s/70s (M and W)
Interviewer: First of all, does the environment bother or concern you at all? The green environment?
W: Yeah, we like green open spaces, should try and keep as many as they could.
Interviewer: Do you do anything to protect the environment?
W: Recycling big time. Everything we can, we recycle.
M: Try and reduce our carbon footprint.
W: Yeah try and reduce our carbon footprint by walking instead of driving, or cycling.
Interviewer: Do you do anything on a bigger scale, e.g. solar panels or hybrid cars?
M: No we've never looked into solar panels. It seems to be a big thing lately. I don't know how well they work and how much energy saving you can get.
Interviewer: I suppose that tariff you get back is a big bonus for many people.
W: Yeah, I suppose. We've seen lots of places around us have got them. I think the council put them on a lot of their houses now don't they. They've converted a few.
Interviewer: Do environmental issues alter how you spend your leisure time? Will it limit what you do, or will you just do what you want?
W: We do what we want really. If we want to go somewhere, we just go. No it doesn't stop us, we just do what we want to do really.
Interviewer: Would it alter your habits on how you get to the leisure site?
M: I suppose the problem is we don't use public transport, locally we cycle and walk. If it's a long way from home, we always get in the car.
W: Bit naughty on some counts but.
Interviewer: How often do you visit Cannock Chase?
W: This is our first time this year. We came a couple of years ago but we live in Derby, so it's not too far away. We're stopping on a caravan site not too far away. And we've come to have a look round so we can bring friends back during the summer so we can go caravanning, camping, and then come up here and introduce them to Cannock Chase.
Interviewer: Which areas do you usually go to? Is it the caravan site on Cannock Chase?
M: We're not at the National Forest one, the camping and caravan club. Kingsley Road.
W: There's a farm that way that's a caravan and country club.
M: Last time we came we did all go over there, including the German Cemetery, that's quite interesting.
Interviewer: So a few different places on previous visits?
W: Yeah. We've been all over. We came for the day and spent most of the day going round. Yeah we went to different places.
Interviewer: Do you live locally?

M: Well I suppose we're probably not local, Derbyshire is a fair way, but not too far. I suppose it's only an hour's drive, if that.
Interviewer: Sop perhaps a medium speciality visit?
M: Yeah.
Interviewer: When you're on site, what do you do? So besides caravanning, is it like walking, cycling?
W: Well we've walked today, but we'd possible cycle.
M: I do a little bit of jogging. Although it is a little bit nowadays. Ha ha. I went last night.
W: But we went for a walk last night as well, or the night before. So we would walk quite a lot.
Interviewer: Have you ever noticed any conflicts between the different user groups on site?
W: No, haven't seen it have we.
M: There's a bit of controversy over four by four use. Also motorbike use. We've seen the signs up here, there and everywhere, I don't know whether there's any conflict. But we don't really know too much about Cannock. In Derbyshire I know we have a lot of green lanes and green lane byways and four by fours using it, green-laners and motorbikes, it's a big controversial subject in Derbyshire.
Interviewer: No trouble with the roads here?
M: No.
W: They're a bit bumpy, could do with filling a few of the pot holes in, ha ha.
M: The entrance to the caravan site we're using is down a bridle way. To be honest, for a bridle way it's actually very good, towed a caravan down there. To be honest I think it's right to keep those roads like that instead of tarmacking them.
W: I suppose if it's tarmacked, people will just drive down them to see what's down there.
M: Yeah, and probably people will just drive if the roads are too good.
Interviewer: Does the Chase have any special or emotional significance for you, like a tradition, or reason for coming here? Does it have that kind of importance to you?
W: Not really, it's just an interesting, nice place to come.
M: It's very unusual to have such a big open area in the middle of an urban settlement.
Interviewer: Is there any tradition with the caravanning aspect, about this area?
M: Well no.
W: Not yet.
M: It's not been long since we've been caravanning. We just tend to wander round all areas really. We travel probably fifty miles a day at the most and stay one night. Then fifty miles another night. If we like it we stay two or three nights, which is why we've stayed two or three nights here. And we do like Cannock Chase.
Interviewer: And finally, do you think that the Chase is well managed at all, by the Council, by the forestry commission?
W: It seems to be. There are signs of them cutting down trees that appear to be dead. It seems to be alright.
M: You do have to remember that it is a forestry woodland at the end of the day. It's not like areas of the Peak District, it's a working environment, which is why it's here in some sense.
Interviewer: So in terms of the more man made facilities, do you think they're well managed and if so, what do you think is good about them, or bad?

W: Plenty of places to sit. We've had a cup of tea out of the café and it seems to be ok. It was quick and efficient. Using bio-degradable cups as well which is good.
M: It's well maintained.
W: It's clean and tidy. It seems to be the right thing, they're not overdoing it. They're just offering teas, coffees, ice creams, cakes. Sort of the basic things, they're not doing three course meals, you know, chips and chips and chips.

9th Group: mature father in 50s (M), two teenage sons and their dog

Interviewer: First of all, does the environment bother or concern you at all? Like the state, as it is?
M: I think there's more motivation to conserve it these days in the true sense of conserve, not preserve. In the last few years economics have come into it, government funding has been slashed, a lot of groups are under pressure to limit the budget. So they've cut back, and a lot of volunteer groups have got the man power but not always the expertise to manage, but management, yeah I think we're more aware of how to manage sensitive areas these days, Cannock Chase being an area of outstanding natural beauty or course.
Interviewer: Do you do anything to protect the environment?
M: I always wear a condom, ha ha. How do you mean protect?
Interviewer: Like on an everyday level, recycling, saving electricity.
M: Yeah, a lot of my work is connected with conservation groups, I'm probably not a typical person to ask these questions of, but yes I recycle. I mean apart from this gas guzzler (four by four vehicle) which I have to have for work and for work with mountain rescue search dogs, we use energy saving bulbs, we recycle at home, we think about where things are coming from, food miles. Another part of my job is being involved with marketing farmers produce locally, so it all ties in, small is beautify as Schumacher said.
Interviewer: Do you do anything on a larger scale, perhaps like solar panels, a hybrid car?
M: No. Not yet, I think solar panels are a waste of money at the moment. Technology isn't there but it's getting there. By the time you've got them in and they're actually working, then they're going to need to be replaced. It's like batteries have come on in leaps and bounds over the last ten years. I suppose some people have got to buy in to it to keep the technology going, but we're far from having it as an economic viable option at the moment on solar power. Wind power, well that's a big nimby isn't it. If I lived in the moorlands, there's a lot of people putting these wind generators up, and they're a bloody eye-sore and they're a pain if you clatter one when you're flying your para-glider, but they are doing a purpose, but how much of a purpose and for whom, I'm not quite sure.
Interviewer: So every day kind of things you do to protect the environment?
M: Well you plan your journey, you keep your journey, you car share, we car share whenever we can, bikes are always a viable option whenever possible, shop local, if we need to go into town, then plan that as a major expedition now, plan what you need to get and try and reduce the visits, and keep your miles down, recycle, look at where things come from. I'm not a big fan of China, I think China is a big polluter of the world, so I try to avoid buying Chinese wherever possible. I'm not a big fan of gadgetry so that's easily done. My main consumables are heat, power and food, and I get my food local.

Interviewer: Do environmental issues alter how you spend your leisure time?
M: Yes, I suppose they do. I'm not sure how until you expand on the question bit.
Interviewer: For example, you have an idea on what you want to spend your leisure time on, would you inhibit it in any way to try and protect the environment, or would you go ahead and do what you wanted to do anyway?
M: Leisure time's precious and you've got to, let's put it this way, I'll fly Para gliders and I'll fly microlites. Microlites use petrol, para gliders are foot powered, but I limit the time I fly microlites, and I try and maximise the time I spend walking, climbing, mountain biking, things that use less. Now how to do that, leisure time, getting out into, you know what's the point of protecting the environment if you can go and enjoy it, cause at the end of the day we all benefit from the environment being exposed to it, we all feel happier for it, so you've got to get there and do it somehow, so you can't remove pollution and environmental impact totally. But yeah, I suppose you try and limit it.
Interviewer: How often do you visit Cannock Chase?
M: Probably on average once a month.
Interviewer: Which areas do you usually go to?
M: We mainly use this for mountain biking, and then we'll use some of the other areas for dog training, cause we'll come out and train with the search and rescue teams with the dogs, so we'll bring the dogs out on the Chase.
Interviewer: Will it be more of the tourist Marquis drive type area or deeper in the forest?
M: Not necessarily, because we want the dogs to be exposed to people, and that's not realistic for the dogs. They've got to get exposed to people being around. So training in the deepest darkest forest, and then the first call out if from somewhere like here, and you've got people, so the dogs need to be exposed, so we use all over.
Interviewer: Do you live local to Cannock Chase?
M: I live near Leek.
Interviewer: So this is a medium speciality visit?
M: This to me is local. Scotland is medium.
Interviewer: When you're on site, what do you do, besides the cycling and the dog training?
M: That's it really.
Interviewer: Do you think there are any conflicts between the different user groups on site? Have you ever experienced any or seen any between other user groups?
M: I think it's quite well managed here. Here it seems good, you can look at other areas; Houndkirk Moor in the Peak District is one I have dealings with, and there you've got conflict because the paths and the routes push mountain bikers, walkers, horse riders and scramble bikes all on to the same tracks. Whereas here you've got it nice and segregated; you've got your mountain bike routes, your forestry trails, your walking routes. And it's quite nice, quite well done. And of course bringing people into one managed car park area with your other stuff like Go Ape and such, and it's a way of managing people, of managing expectations. No, I think this is quite well managed. Well done forestry commission.
Interviewer: Does the Chase have any special or emotional or perhaps traditional significance for you, like to make you keep coming back?
M: Not for me. No, except these lads (teenage sons) growing up now have been coming here for about five years mountain biking, so it's always somewhere we want

to come. It's somewhere you can relax, it's a nice place to get, you can sort of just sit down and have a drink of pop, something refreshing.
Interviewer: And the final question, do you think that the facilities and the layout of Cannock Chase is well managed? So other than the potential conflicts, the actual facilities, the physical landscape, is that well managed do you think?
M: Yeah, I think so. From what I've seen of it, I know the County Council have got something to do with the AONB and you've got the forestry commission on the forestry bits. But we've been round the mountain bike trail; they're felling. I mean they put clear signs up, they're managing it, that's part of it being a forest, and we weren't inconvenienced, we went round the lorries where they were loading and it wasn't a problem. You've got people split off, you've got the management there ok. But now I've come back and I want a cup of tea and now I've got to go and try and find a café. Ha ha. I can find a toilet, but not a café, cause it's shut... they've learnt now to avoid the conflict, whether it's just what the forestry commission do. But they're certainly better than the Peak Park at managing the conflict between users… from £4 to £3 a day. Bonus. Put that in your report. You used to have to pay £4 last year but it's £3 now. There's not many car parks that go down in price are there

<u>10th Group: one man (M) and one woman (W)</u>
Interviewer: Ok, I guess you've just been for a bike rider have you?
M: Yeah.
Interviewer: Is that something you do regularly?
M: Started to yeah.
Interviewer: So are you local to the area?
M: Huntington, so yeah, it's three or four miles really.
Interviewer: Do you come here fairly often?
M: Yeah, on bikes yeah.
W: Two or three times a week.
Interviewer: That is fairly regular, and is that when the weather's better, or do you try and come the same all the year round?
W: You go out in the bad weather (to M), I don't tend to.
M: Yeah I will. Definitely, all year.
Interviewer: Are you local anyway?
W: I was born and live in Rugeley.
M: I was born and bred in Cannock.
Interviewer: Do you use your leisure time elsewhere or do you mainly come here?
M: Mainly here but we go scuba diving as well, so here and various other places around the country. But yeah, here's quite frequent.
Interviewer: Does Cannock Chase mean anything particular to you, does it hold a special place in your heart or anything like that?
W and M: No.
M: No it's quite strange really that we've had it on the doorstep for years and not used it for its full potential.
Interviewer: Is there any reason now then why you're using, if you're using it more, why you're using it more?
M: Lifestyle change I suppose. Get out and see the world.
W: Try and keep fit.
Interviewer: In terms of the environment, are you bother about the environment and damage that's being done around the world? Does it bother you in any way?

W: I think we're concerned about it but we don't actually do anything to help it really.
M: I think lots of people don't, recycling bits and bobs like that we do. But things like when we go diving in the sea, the change of attitudes of some people with rubbish and litter and things like that, it's completely different. There's just rubbish that you wouldn't believe under there that people are just leaving there.
Interviewer: And you notice that from going diving?
M: Yeah.
Interviewer: Does that make you more sensitive do you think to people who are maybe less concerned?
M: I think it's personal attitudes that'll only change that. Not anybody else's. I think recycling and bits and bobs we do, we do and that's it. I don't think there's any major concerns that we could highlight to somebody. It's their own choice.
Interviewer: When I've been speaking to people that tends to be the thing; things that they can control. When you're doing leisure activities, do you think of any environmental impacts of what you do? Does it concern you?
M: I think biking once we come up here, eco-friendly as we are, biking is good. We obviously drive here, 'cause we're not that fit to cycle up here at the moment.
W: We will eventually bike here.
M: That's the only thing that environmentally we oppose. I think the trails that we go on are marked and designated trails, we don't cut anything up.
W: We don't go off the track do we.
Interviewer: So you feel that you're fitting in with the things in place here.
W and M: Hmm.
Interviewer: Do you think of other groups of users, in terms of things that they might be doing badly, so walkers or horse riders or other cyclists; do you think they pay the same respect?
M: I think they've got the same rights and entitlements as we have as long as they respect it, which I don't think they always do. There's been motor bikers up here and bits and bobs that churn things up. I think eco-friendly wise horses and cycling and walkers are not going to do any massive major damage. I know things can grow back and it's the attitude to that, as long as you stick on the paths and do whatever they're told then that's good.
Interviewer: You seem to be a live and let live type of people.
M: I don' t think you can influence the world by putting your head above the sand.
Interviewer: Do you think that the Chase here, in terms of the environment and trying to protect the environment, do you think it's well managed, do you think they do a good job?
W: I think so yeah, 'cause it's really come about here over the last few years.
M: It's developed, they do things like concerts two nights in June, that's probably the only impact they have on the environment.
Interviewer: From asking you if it's a special place or anything, is it somewhere that you use then you don't think about it apart from that, that you've got no major feelings about it? It's somewhere useful to come to cycle for example?
M: It's useful yeah.
W: I mean I used to come here as a kid with my parents and stuff, but it doesn't have any significance like that.

<u>11th Group: one man (M) and one woman (W)</u>
Interviewer: Ok, so you're here just walking your dogs today?

M: Yeah.
W: Yes.
Interviewer: Are you locals?
W: Yes. I Live here in Rugeley.
M: I'm not.
Interviewer: So is this somewhere you come regularly?
W: Yes, virtually every day.
Interviewer: And is that dog walking?
W: Yes.
Interviewer: And how long do you spend here when you come?
W: Well it just depends really, I mean I can just walk around for 30mins or an hour. I take different routes; it just depends on the weather and circumstances and how busy I am.
Interviewer: Would you come here for any other reasons, do you do anything else here at all, cycling or?
W: No I don't actually, I just walk. I mean I'm very drawn to the area, it's not just the dogs, you know I just love being out in nature anyway.
Interviewer: So you like being out in nature, would you say the Chase has a special significance for you, do you feel anything special about it?
W: As I say, I'm from Birmingham, but I live here, and I'm quite surprised. I'm a teacher in the area, and a lot of the young children they haven't even been to Cannock Chase, and an area of outstanding beauty, and they might know of it but they've never been here. It draws the bikers etc, I think it's got a strange quality about it, you always said that (to M), it's like a place that hasn't been discovered for many.
Interviewer: Is that quite a nice thing in some way that it's not been discovered, or you said it in a sadness in some ways?
W: Yeah well I just think it could be more beautiful if there were people here enjoying it. I know we get lots, but it's mainly bikers that's the big draw up here. And as I say, working in education myself, I find it quite strange that those children aren't getting up here and enjoying the outdoors.
Interviewer: Do you think there's a particular reason for that why kids aren't coming here?
M: I think it's probably to do with the parents and the background of the parents. There's some quite poor areas of Cannock and I think probably the parents are not that way inclined. I mean it's had its hardships through the mining, the coal mining being shut, and I think a lot of the local people have been left high and dry.
W: I'm writing a play about it. I write commissions for the local council, and so I'm writing a play called The Forest Cause, the route to health, the statues there, so that'll be on at the Prince of Wales in Cannock in May.
Interviewer: You writing the play gives me the idea you've got some attachment.
W: Yeah, like I say I love being out in nature.
M: You've written a few plays to do with the area, haven't you.
W: Yes so I work on various projects that they're trying to push usually to do with health. So this is a play to do with, well what I'm looking at it is trying to encourage those young children to be out in nature and that being healthy isn't just about what you eat or doing some exercise, there are other ways to get exercise, there are other ways to feel good, to feed your spirit.

Interviewer: In terms of leisure activities that you do, do you think about the environment? Do you think about the impact that things you do might have on the environment?
W: Yeah absolutely. For me, I don't particularly like this Go Ape. It doesn't interest me whatsoever. I don't want to climb trees I want to walk on the earth. It's just the person I am.
M: I don't know what they do with the money they get from this, I don't know whether they put the money back into the forestry. I mean it is only based in this area apart from the cycle tracks, if it helps to generate money back into conservation and whatever then that's a good thing I suppose. When I used to live up here, we didn't particularly like this because there's a lot of people who come up here to do that and go out on bikes and stuff.
W: Also the littering as well. We quite often go out and again I wrote another play for the council called Bin World which was a bit inspired by coming round here because you think well why are people just throwing their trash, and we go out regularly and pick it up and come back with a couple of bags.
M: I notice it seems to have got a little bit better over the last few years. I mean when we first moved here it was pretty bad. And they don't put bins out because of the man power to go round collecting all the bins so you get some people who just don't care. I think actually it's not too bad. The majority of people I think do take their litter home, pick up their dog mess and stuff.
Interviewer: You mention that you don't like the Go Ape, what do you feel about the cyclists and groups like that?
M: It's somewhere for them to go and it's a purpose built track. Everybody's got to have something and you know it doesn't take up a lot of, it's just that every now and again you get somebody coming up behind you on their bike, and bells are uncool, but that happens everywhere. We nearly got ran over in Manchester didn't we. Walking along the canal side and some guy came right up to us. He didn't have any bell he was just quite put out that we were stood in his way.
W: I think that it's great bringing out groups of people into nature, into the environment. That's the first thing that hit me when I moved here. Groups of men, being sociable, being out, getting healthy I thought it was great to see. As I say it doesn't draw me, it's just my own personal choice. I like to have my feet on the ground.
M: It's good for young people if the y come ad do it. I'm not sure how much it costs.
Interviewer: I'm not sure if it's a private enterprise.
M: Yeah they've got various sites over the country. I think some forestry commission sites have got some. It's ok.
Interviewer: In terms of the environment. Do you do much, are you concerned much about environmental issues, do you do much yourselves to, that you think might protect the environment?
M: You don't leave your litter, that's the main thing that everyone can play a part.
W: Recycling, all of that can play a part.
Interviewer: Things that you can do fairly easily and control.
W: Yeah absolutely, you just adapt your lifestyle don't you, and that's a constant consideration all the time. I mean in terms of my creativity I'm doing a great deal there in educating and part of the projects that the children are learning about the environment. I'm actually producing the material that they'll go off and explore. So yeah, I think I've got quite a big part to play in.
M: It brings awareness to them.

W: Well interestingly, the first play I produced, Bin World, my cast now that are in the forest schools were the children watching Bin World. So now they're a bit older, they'll be performing to the younger children. So we do our bit.
Interviewer: So you do your bit in different ways.

12th Group: one woman (W), grandmother (GM), grandfather (GF) and grandson (GS)

Interviewer: So you're just walking the dog I guess?
W: Yes and my son's on the bike somewhere. I don't know where he's gone.
GM: basically we've had to use this, we met at Cannock Chase because my daughter lives in Manchester, we live in Maidenhead and it was a convenient thing. She'd been staying, she'd left her boots. We were thinking of somewhere that would be pleasant for the dog and the little boy as well. So it was very convenient too.
Interviewer: So is this somewhere you'd normally come to, obviously you know about it?
W: I used to live in Stoke, so I've been years and years and years, but you used to come as a child.
GM: I was educated, or did the second half of my education in Wolverhampton and used to come from there on our bikes, but that's a long, long time ago, as you can imagine.
GF: And everybody knows about Cannock chase.
GM: Yes, it's well known place.
Interviewer: So Cannock Chase, does it hold any special significance for you, especially for you in the fact that you used to come here? Is it a special place in anyway, or is it just a convenient location?
GM: I think it was just a place where it was nice to ride and it was open and somewhere away from the town. I think the big thing is the space.
Interviewer: And so you enjoy that?
GM: Very much so.
Interviewer: Going out into nature, is this the sort of thing you'd normally do in your free time? You enjoy being outside?
W: Yes.
Interviewer: When you're out doing any leisure activities, coming out anywhere like this, do you think about the environment, do you think of impacts you might have in the environment at all?
W and GM: Yes.
GM: I mean one tries not to drop litter, to respect the place, and I think one of the things that disturbs me about here is the seemingly no wild flowers, it's not used if you know what I mean. It's a little bit dull to be honest. I remember it more as being more foliage, not quite as bare as it is. 'Corse I know it's April.
Interviewer: You would have expected some more?
GM: Yes. I think that saddened me, that there's no sign of any wild flowers, is one of my things wild flowers, and so many of them are disappearing, it's so sad.
Interviewer: I'm not from here, but I'm assuming, your memory, that there was a lot more than this.
GM: Oh yes.
Interviewer: Do you know why there's been a change?
GM: It's very industrialised round here, compared with what it was. Yes, I mean we came off the motorway, and we actually came all the way round inadvertently, and I

was quite shocked how industrialised it was, and now that they're building on it so many houses. It's being gradually encroached in so many areas.
GF: We haven't gone far from the bit where Go Ape is, I think the one bit that's really nice is so intriguing, was the discovery trail and route to health. That was brilliant. So good.
GM: Very imaginative.
Interviewer: I've just spoken to somebody walking their dogs and the lady's a teacher and she's actually been involved in the development of that. She writes plays and a lot of them are based on the Chase here. Are you concerned about the environment generally? Do you try and protect the environment, are you concerned that the environment is threatened?
GF: Yes.
GM: Very much so. I think especially when you're as old as we are, we're in our eighties, you look back and you know how much has been lost and it's very sad. And it's going on all the time.
Interviewer: You've got maybe two generations then, do you maybe pass that message on.
GM: Yes, we've always tried to show the children the beauty of growing things, but even more so our grandchildren, and I think to look at the wonder of nature.
W: (to GS) You're on the eco-council as school aren't you.
GF: Hopefully, there's a lot taught in the schools. There's a lot of things on television. Chris Packham sort of programs. Where on a very knowledgeable expertise grade he talks about and demonstrates so well. There's a lot of science on television, so well produced. Chris Packham did say which I thought was very profound but when man stopped being a hunter, the moment when we turned to agriculture we started to control the environment, not live with it. So it's been a long time coming.
Interviewer: Do you feel it's right for us to control the environment?
GF: Oh I think it is, we've got to. One of the brilliant stories, of the greater crested newt which was found on a site where one of these huge out of town shopping villages was going to be built, and the greater crested newt is protected, and the whole scheme has been stopped until they have been rehoused. Very recently in Kent, the Fye area that was going to outdo Disneyworld and they found a spotted frog which was protected that stopped it.

Appendix 3 – Phase 1 and Phase 2 Questionnaire and Phase 1 Instructions

This questionnaire is designed to investigate the environmental attitudes of users of Cannock Chase. The survey is anonymous and requires no identifiable personal details. Your responses are completely confidential and will be used solely for a PhD project funded by the University of Wolverhampton. You are free to withdraw from completing the survey at any point. If you have any related questions, please contact Dr. Crispin Dale at the university on 01902 323278 or email C.Dale@wlv.ac.uk

1. How much do you agree with the following general statements about the environment? (please circle)

	Strongly Disagree	***Mildly Disagree***	***Unsure***	***Mildly Agree***	***Strongly Agree***
We are approaching the limit of the number of people the earth can support	1	2	3	4	5
Humans have the right to modify the natural environment to suit their needs	1	2	3	4	5
When humans interfere with nature, it often produces disastrous consequences	1	2	3	4	5
Human ingenuity will ensure that we do NOT make the earth unlivable	1	2	3	4	5
Humans are severely abusing the environment	1	2	3	4	5
The earth has plenty of natural resources if we just learn how to develop them	1	2	3	4	5
Plants and animals have as much right as humans to exist	1	2	3	4	5
The balance of nature is strong enough to cope with the impacts of modern industrial nations	1	2	3	4	5
Despite our special abilities, humans are still subject to the laws of nature	1	2	3	4	5
The so-called "ecological crisis" facing humankind has been greatly exaggerated	1	2	3	4	5
The earth is like a spaceship with very limited room & resources	1	2	3	4	5
Humans were meant to rule over the rest of nature	1	2	3	4	5
The balance of nature is very delicate and easily upset	1	2	3	4	5
Humans will eventually learn enough about how nature works to be able to control it	1	2	3	4	5
If things continue on their present course, we will soon experience a major ecological catastrophe	1	2	3	4	5

2. What is the first half of your postcode? (e.g. WS3 / WS12) | | | | |

3. What is your gender?

Male		Female	

4. What age group are you?

16-18		19-21		22-24		25-34		35-44	
45-54		55-64		65-74		75-84		85+	

5. What is your occupation? ……..

6. What is the highest level of academic qualification you have attained? …….

7. Which group do you belong to? (please tick)

Visitor to Cannock Chase		Resident of Cannock Chase		In employment at Cannock Chase	

8. What is the main activity you are here to do today? (please state, e.g. dog walking, GoApe, picnicking)

……

9. Do you use Cannock Chase for any other activities?

Yes		No	

If yes, please state the activities ……

……

10. Do you use other parts of Cannock Chase besides this site?

Yes		No	

If yes, please state which parts ……

11. Roughly how often do you use Cannock Chase for leisure activities? (please tick the most relevant)

This is my first visit		Daily		2-6 days a week	
About once a week		About once a fortnight		About once a month	
About once in 3 months		About once in 6 months		About once a year	

12. How did you travel to Cannock Chase today? ……..……

13. What things encourage you to use Cannock Chase in general? For each item, please indicate how much you agree or disagree by circling the appropriate number (1=Strongly Disagree, 5=Strongly Agree)

…….. encourages me to use Cannock Chase	***Strongly Disagree***	***Mildly Disagree***	***Unsure***	***Mildly Agree***	***Strongly Agree***
Its natural beauty	1	2	3	4	5
The area means a lot to me	1	2	3	4	5
It's free to use	1	2	3	4	5
There are signposted routes	1	2	3	4	5
It's got a variety of places to visit	1	2	3	4	5
For my personal health and wellbeing	1	2	3	4	5
It offers good facilities for visitors	1	2	3	4	5
It's convenient for me	1	2	3	4	5
You learn about the area, its history and environments	1	2	3	4	5
Specialist activity routes	1	2	3	4	5
Other (please state in most to least encouraging order)……..					

14. What things, if any, do you dislike about Cannock Chase? For each item, please indicate how much you agree or disagree, by circling the appropriate number

I dislike ……	***Strongly Disagree***	***Mildly Disagree***	***Unsure***	***Mildly Agree***	***Strongly Agree***
Poor etiquette of other site users	1	2	3	4	5
Littering/dog waste	1	2	3	4	5
Insufficient facilities	1	2	3	4	5
Overdevelopment of site	1	2	3	4	5
Activities of other site users	1	2	3	4	5
Fees for car parking	1	2	3	4	5
Other (please state in most to least disliked order)……					

15. How much do you agree with the following statements about Cannock Chase (again please circle)

	Strongly Disagree	***Mildly Disagree***	***Jnsure***	***Mildly Agree***	***Strongly Agree***
Cannock Chase's natural environment is under threat	1	2	3	4	5
Management services for Cannock Chase do enough to protect the natural environment	1	2	3	4	5
It is important to preserve Cannock Chase for future generations	1	2	3	4	5
My journey to Cannock Chase today has had an impact on the global environment at large	1	2	3	4	5
My journey to Cannock Chase today has had an impact on its environment	1	2	3	4	5
I do enough to protect Cannock Chase's environment	1	2	3	4	5
My activities here cause environmental damage to the site	1	2	3	4	5
The activities of other users on Cannock Chase cause more environmental damage to the site than any that I do	1	2	3	4	5
In general, I do everything I can to protect the environment	1	2	3	4	5
I only do what I have to do e.g. recycling household rubbish to protect the environment	1	2	3	4	5

Thank you for completing this survey

Phase 1 questionnaire instructions to participants

Hi,
I am currently studying for my PhD, which looks into environmental attitudes of User and Non-user groups of Cannock Chase Area of Natural Beauty, South Staffordshire.
I have put together a questionnaire for each group; both are anonymous and do not ask for any personal identifying information.
If you, or anyone you know inside/outside the university would be interested in completing one, here are the links to the electronic versions – please complete the one which most closely matches your site usage.
I have defined the User group as those who use the Chase at least once a year; Non-users less than once a year. For the user questionnaires - if you could base your responses on your most recent visit to the Chase.

Cannock Chase User questionnaire:
http://survey.wlv.ac.uk/survey.asp?s=01079127185137228070
Non-User questionnaire:
http://survey.wlv.ac.uk/survey.asp?s=01213056206217166137

I have also attached the Word Document versions of the questionnaires if preferred. Please feel free to give them to anyone interested in completing one, and to forward the forms back to me at [e-mail address redacted], or to the postal address at the base of this email
Any responses will be greatly appreciated
Thank you
Clare Jackaman
University of Wolverhampton
Room MK517, Molineux Street
Wolverhampton, WV1 1DT
Tel: [number redacted]
Fax: [number redacted]
Email: [e-mail address redacted]

Appendix 5 – Phase 2 Sample of existing AONB posters and leaflets used in content analysis

DISCOVERING BLACK DOWN

14 youths trained

1 world premiere 70 guests

2 footpath surveys

15 events

2 days litter picking

266 event guests


Supported by
Havant
BOROUGH COUNCIL
CLEAN
FOR THE
QUEEN
Register now at
CleanForTheQueen.co.uk
VACUUM YOUR VILLAGES!
SPRUCE UP YOUR CITIES!
DE-LITTER THE LAND!
Join the Clean for The Queen weekend on
March 4/5/6 and let's clear up the UK in time
for a very special Birthday.

Top Tips for Pollinator Patches !

DEDHAM VALE AREA OF OUTSTANDING NATURAL BEAUTY & STOUR VALLEY PROJECT

Suffolk Coast & Heaths Area of Outstanding Natural Beauty

Our pollinators are threatened — help create pollinator friendly gardens

Bees drink water and evaporate it to cool their hives. Fill a bowl with glass beans, pebbles or marbles to provide a surface for them to drink from

Avoid using pesticides

Aim to have at least two types of plants in flower all year for a constant supply of nectar

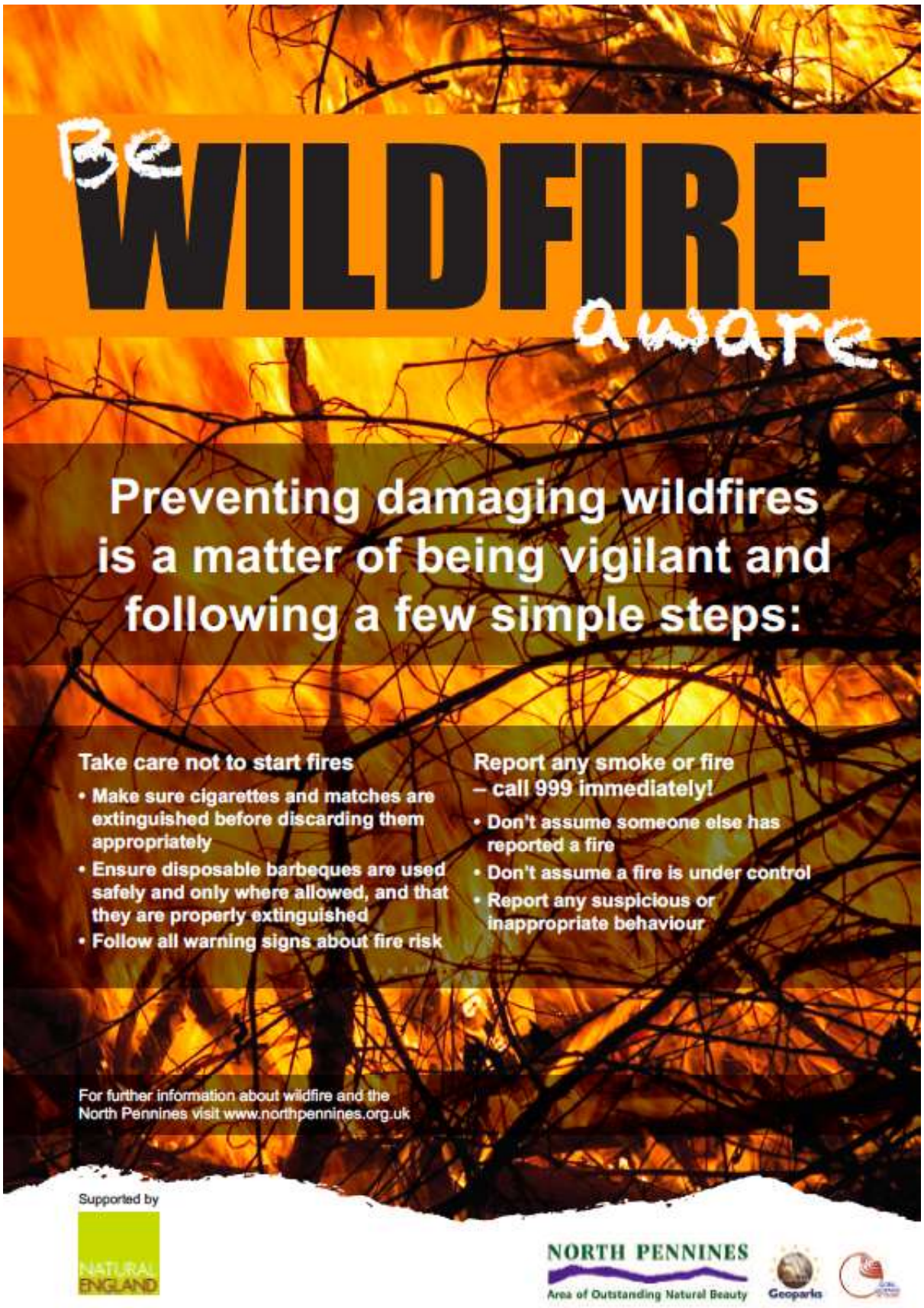
Plant the same type of *flowers in groups* to reduce energy spent flying between far apart plants

Leave piles of *dead wood* lying about for pollinator nest sites and *bare ground* on a south facing slope for ground nesting bees

Grow plants with *different flower shapes*, for example tubular, bowl-shaped and bell-shaped. *Avoid double flowered varieties* which have no pollen or nectar

Let your garden grow wild, *cut grass less often* – longer grass and weeds provide pollinator nest sites

Supported by the Suffolk Coast & Heaths and Dedham Vale Areas of Outstanding Natural Beauty 'Sustainable Development Funds'


Be WILDFIRE aware
Preventing damaging wildfires is a matter of being vigilant and following a few simple steps:
Take care not to start fires
• Make sure cigarettes and matches are extinguished before discarding them appropriately
• Ensure disposable barbeques are used safely and only where allowed, and that they are properly extinguished
• Follow all warning signs about fire risk
Report any smoke or fire – call 999 immediately!
• Don't assume someone else has reported a fire
• Don't assume a fire is under control
• Report any suspicious or inappropriate behaviour
For further information about wildfire and the North Pennines visit www.northpennines.org.uk
Supported by
NATURAL ENGLAND
NORTH PENNINES
Area of Outstanding Natural Beauty
Geoparks

The River Wye

Welcome to the River Wye in the Wye Valley Area of Outstanding Natural Beauty (AONB). We hope you have a pleasant trip. By following the code of conduct at all times it will help you enjoy the river without reducing the enjoyment of others or damaging the environment.

Safety on the River

The Wye can be dangerous and has been the cause of many accidents. It is at its most dangerous when there are strong currents, high water levels or cold weather conditions. Don't take risks and never underestimate the power of the river. The Wye is a fast flooding river, which can rise after heavy rain at a rate of over 30cm an hour.

Tides

Below Bigsweir Bridge the Wye is tidal and can be very dangerous, especially below Tintern. If you intend to canoe this stretch, leave Tintern no later than one hour after high water and travel down without stopping. Inexperienced canoeists are advised to avoid this stretch and should on no account travel below Chepstow, as currents in the Severn Estuary are extremely dangerous.

Health and Hygiene

The water quality of the Wye is generally good, but contains natural bacteria and other micro-organisms. Although the risk of contracting an illness is small, there are sensible precautions which can help you stay healthy:

- Do not swallow river water;
- Cover cuts or sores with gloves or waterproof plasters;
- Where possible, wash or shower after taking part in water sports, especially if you have capsized;
- Wash your hands before eating;
- See your doctor if you feel ill after exposure to the water. If you develop flu like symptoms it is possible you may have contracted Leptospirosis (a rare disease, but one which can have serious complications).

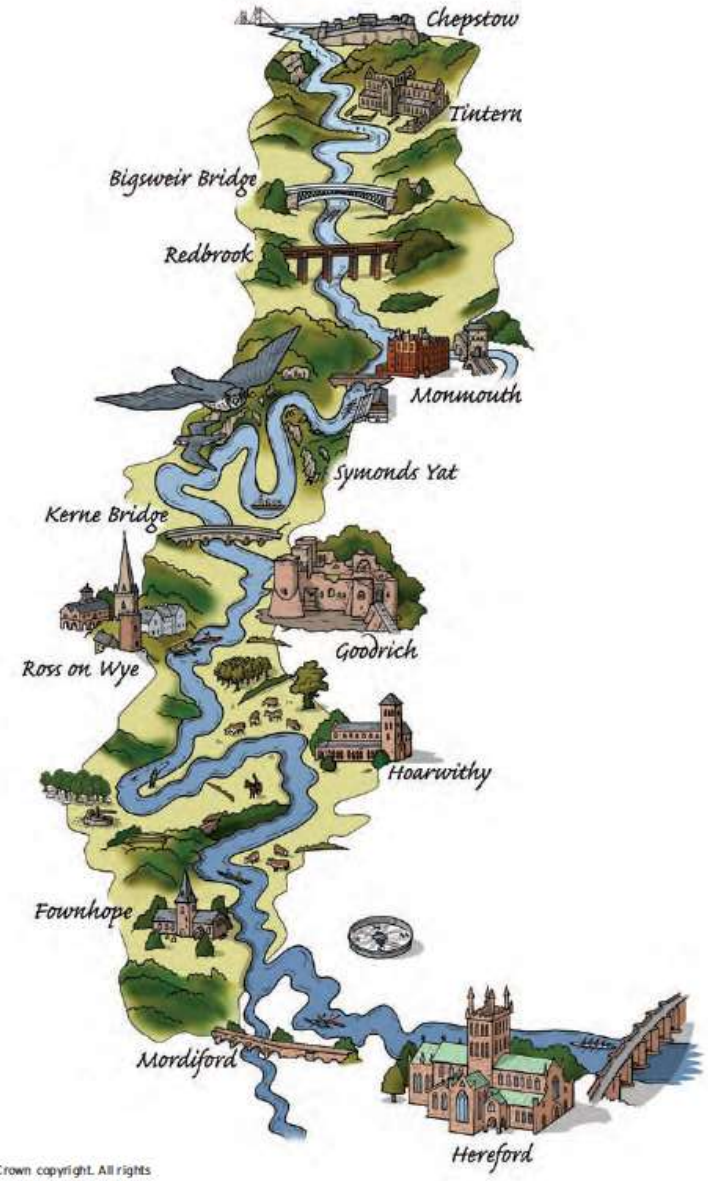
Have a good trip!

Wye Valley A.O.N.B. Office
Hadnock Road
Monmouth
Monmouthshire
NP25 3NG

www.wyevalleyaonb.org.uk

'This project has been supported by Advantage West Midland's Natural Assets Programme in partnership with Natural England'

Code of Conduct for Canoeists on the Wye



NEW THREATS TO THE RIVER WYE

Important information for canoeists

All river users benefit from a healthy aquatic environment. Clothing and equipment that has not been thoroughly dried or disinfected can carry invasive species and diseases that can infect water bodies, often with devastating effects. Crayfish plague is just such a disease.

Another potentially damaging plague is *Gyrodactylus salaris* (GS) which affects salmon and could be brought in from the continent. It has devastated rivers in Norway.

Another, more recent threat has come from the killer shrimp Dikerogammarus villosus, a destructive species that has arrived in UK waters from Eastern Europe. It too could have a devastating effect on wildlife and fish. They can easily be transported in the webbing and water in the bottom of canoes and kayaks.

To reduce the risk of Crayfish plague ,GS and killer shrimp spreading in UK waters it is important to take the following precautions.

WHAT YOU MUST DO

If you intend to reuse your canoeing equipment on trips to different UK waters or abroad and there will be less than a seven day gap between your trips, you must ensure that your clothing and equipment has been properly sterilised through one of the following methods.

METHOD A

Drying to a minimum of 20 degC for at least 2 days.

Method B

Heating to above 60 degC for at least one hour.

Method C

Deep freezing for at least one day.

Method D

Immersion of materials in a solution of, or addition of one of the following chemicals to the concentration indicated for a minimum of 10 minutes:

- Virkon 1%
- Wescodyne 1%
- Sodium chloride (common salt) 3%
- Sodium hydroxide 0.2%

Care for Wildlife

One of the joys of a trip on the River Wye is watching its abundant wildlife. We have a responsibility to protect our countryside now and for future generations, so make sure you don't harm animals, birds, plants and trees.

Some fish species are particularly sensitive to disturbance, especially during the spawning seasons. During winter salmon spawn in the upper reaches of the Wye. Between 1st of April and 31st July many coarse fish are breeding and Twait and Allis Shad use shallow gravel beds for egg laying. Please do not land on gravel beds during this period and at all other times try to:

- Avoid disturbing nesting birds along the river banks, particularly in spring time
- Avoid damaging beds of waterweed
- Stop your activity if you are clearly disturbing wildlife

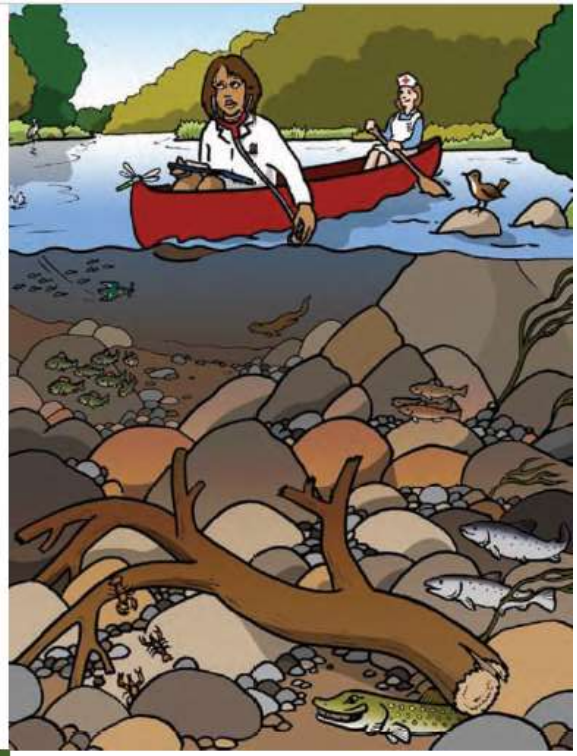
The river habitat and many of the species it supports are protected by law. Ignoring this advice could result in a criminal offence being committed, and you may be subject to enforcement action.

Stay Safe

You are responsible for your own safety and for others in your care, so be prepared for changes in the weather and other events. The river conditions can change rapidly. We advise you to check the river level just prior to your trip via the Environment Agency's automated telephone service on 0906 6197755 (BT premium rate) or on their website http://www.environment-agency.gov.uk/homeand leisure/floods/riverlevels/120743.aspx. Alternatively the Wye and Usk Foundation provide free river level information on their website www.wyeuskfoundation.org/conditions/index.php When planning or partaking in your river trip always consider:

- That you use the river in a safe fashion and that you have the appropriate safety equipment
- That any groups of young novice boaters are led by suitably experienced responsible persons – preferably a qualified instructor
- That you don't drink alcohol during and just prior to your trip on the river
- That you follow instructions given to you by your canoe hire operator and/or group leader

And finally. ...if in doubt, don't!



Help Keep a Healthy River

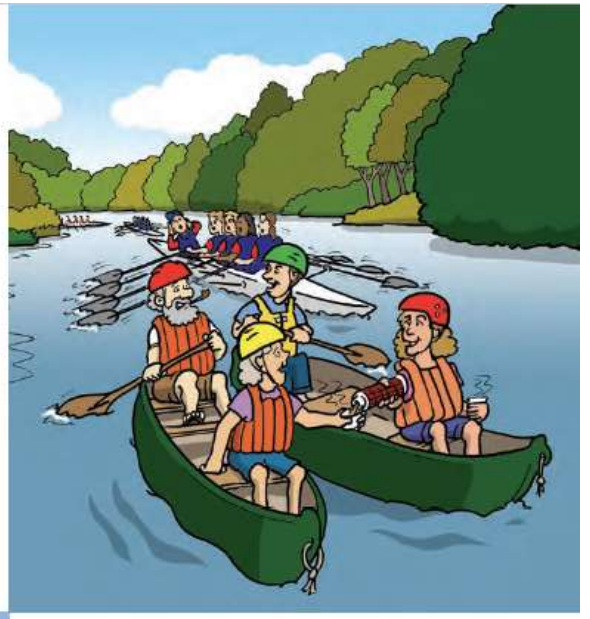
The River Wye boasts excellent water quality in a largely unmodified water course. You can help maintain a healthy river by:

- Taking your rubbish away with you
- Avoiding damage to banks, the riverbed and bankside vegetation - this can lead to erosion. You can help by only launching and landing at purpose made launch points
- Avoid dragging boats and equipment over rock slabs and stones

Consider Other People

Showing consideration and respect for other people makes the countryside a pleasant environment for everyone. Pay particular respect to local residents and avoid situations that may result in argument and remember to always:

- Park sensibly without causing obstruction, do not block gateways or load and unload vehicles in awkward places.
- Keep noise to a minimum
- Get changed out of public view
- Whenever possible come ashore at recognised landing places; do not trespass on private property or moorings
- When canoeing have special regard for beginners, as you would for learner drivers on the road



Be Fishing Friendly

Canoeing and kayaking can have a bigger impact on anglers than any other river users, particularly if you are in a large group. By following a few simple guidelines you can limit the effect your boating will have on anglers and their enjoyment. If you are travelling in a group please keep together and pass anglers in one go to prevent prolonged disturbance, and in all instances try to:

- Pass anglers with as little noise and disturbance as possible
- Keep away from banks being fished and fishing tackle
- Avoid loitering in pools if anyone is fishing
- Comply with reasonable directional requests

Please also note that fishing from a boat is not allowed unless you have a valid rod licence and permission from the owner/tenant of the fishery rights.

- Remember that larger boats are less manoeuvrable and cannot use such shallow waters as canoes, rafts and rowing boats
- Give way to those engaged in organised competition and have regard to any instructions given by officials
- Hail to draw a person's attention to a situation which might otherwise result in inconvenience, damage or collision. Please treat a hail as a friendly warning and not as an insult

There is an agreement for canoeing on the upper river. Details can be found at www.wyeuskfoundation.org/navigation/index.php

Environment Agency

wye valley dyffryn gwy


There are very few places in the world that are free of the devastating varroa mite - one of the significant factors in the drastic decline of worldwide honey bee numbers.
The UK has only 3% of the flowering meadowland and 50% of the hedgerows that it had 60 years ago.
Contact
If you would like to learn more about the work of the Isles of Scilly AONB Partnership and the Isles of Scilly 'Honeybee Health Project' please visit our website www.ios-aonb.info
Alternatively you can call the AONB Unit on 01720 424315 or email: aonb@scilly.gov.uk
The pollination benefit of honeybees is calculated to help the British economy by millions of pounds per annum.
References: The British Beekeepers Association / Prize Bee.
Printed on 100% recycled stock. Design by Leap - www.leap.uk.net
Bee Alert
Isles of Scilly
Honeybee Health Project
ISLES OF SCILLY
Area of Outstanding Natural Beauty
defra
Department for Environment Food and Rural Affairs

The Isles of Scilly are unique in many respects. For example, the 28 mile stretch of water between Cornwall and the islands acts as a natural protective barrier, keeping out some diseases and invasive species. As a consequence the islands' honeybee colonies are free of diseases such as varroa that have devastated many mainland hives.

The Isles of Scilly Area of Outstanding Natural Beauty (AONB) Partnership is collaborating with the islands' bee-keepers to develop the Honeybee Health Project which aims to keep the islands' honeybee colonies disease-free.

In the winter of 2011 there was a 16.8% decrease in honeybee stocks in the south west region.

You can help the honeybee by:

1. Thoroughly washing out old honey jars. Honey from other parts of the world can carry pathogens which harm bees.

2. Pollinating insects, such as the honeybee, require a rich and varied supply of pollen and nectar throughout the year. Growing pollinator-friendly plants in your garden will encourage a tapestry of biodiversity, including honeybees.

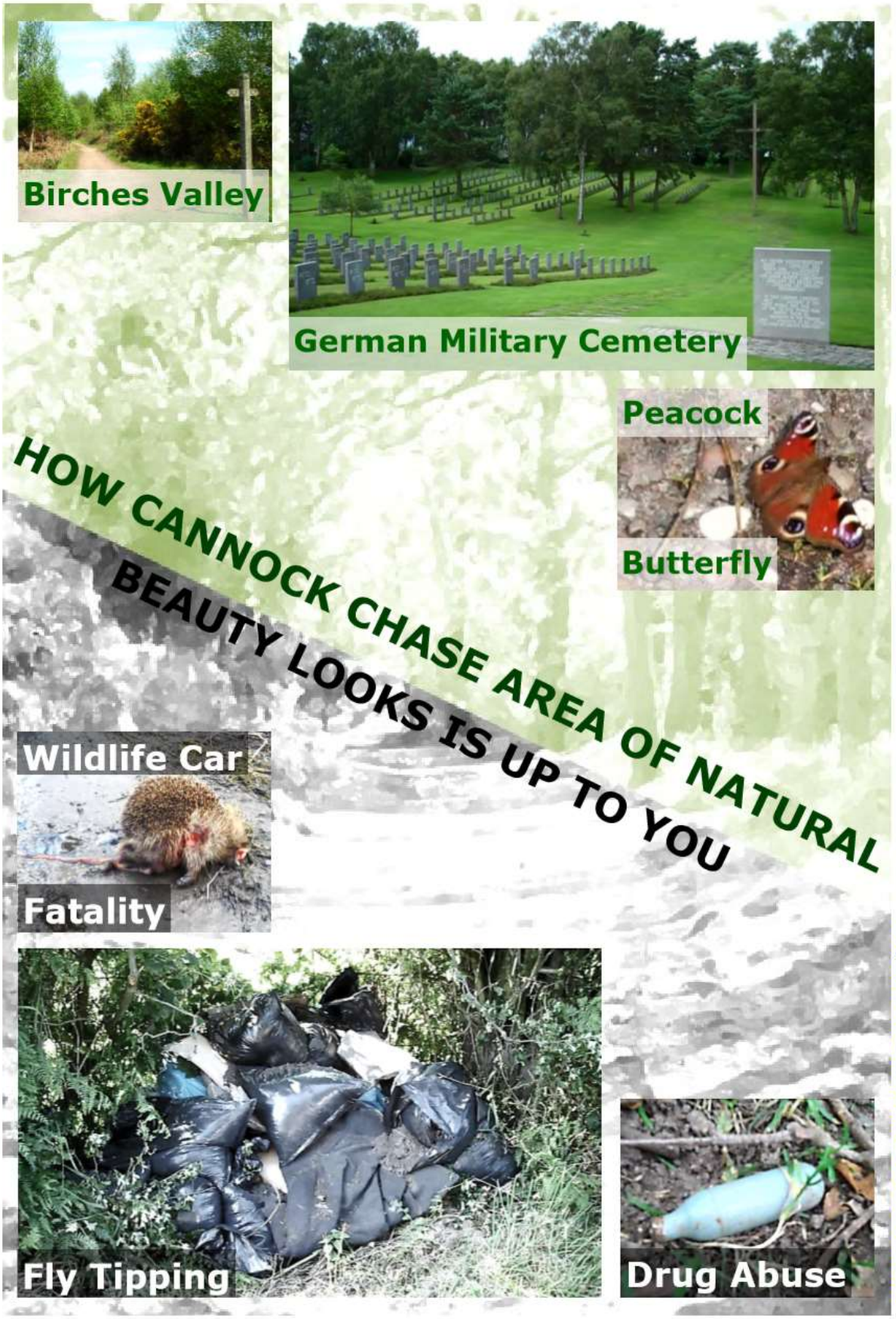
3. Maintain an insect friendly garden by not using chemicals. These can harm or even kill important insects, such as honeybees.

4. Buy local honey- it tastes delicious, it is good for you and it can aid immunity against hay-fever and other allergies. Locally produced honey reduces your carbon footprint, unlike honey imported from the other side of the world.

5. Learn what incredible and essential insects honeybees are. Stinging insects are often misunderstood and much maligned. Honeybees are generally very peaceful creatures unless they are directly threatened or interfered with. Without honeybee pollination we would have a third less food varieties on our tables at meal times.

6. Seek out a local bee-keeper if you are interested in starting beekeeping.

Appendix 6 – Phase 2 Eight Pilot Poster Designs



For more information please visit the official Cannock Chase AONB website at http://www.cannock-chase.co.uk/

HOW CANNOCK CHASE AREA OF NATURAL BEAUTY LOOKS IS UP TO YOU


Fallow Deer


Peacock Butterfly


Chaffinch


Hedgehog


Cannock Chase War Cemetery


Sherbrook Valley

Dog Fouling


Littering


Drug Abuse


Arson


Soil Erosion

YOU CAN DECIDE WHAT CANNOCK CHASE AREA OF NATURAL BEAUTY IS HOME TO

For more information please visit the official Cannock Chase AONB website at http://www.cannock-chase.co.uk/

HOW DO YOU WANT CANNOCK CHASE

AREA OF

NATURAL BEAUTY TO LOOK?

For more information please visit the official Cannock Chase AONB website at http://www.cannock-chase.co.uk/

For more information please visit the official Cannock Chase AONB website at http://www.cannock-chase.co.uk/

TEAR AND SHARE
CUT AND CURB

HOW CANNOCK CHASE AREA OF NATURAL BEAUTY LOOKS IS UP TO YOU

TEAR AND SHARE
CUT AND CURB

For more information please visit the official Cannock Chase AONB website at http://www.cannock-chase.co.uk/

HOW CANNOCK CHASE

AREA OF NATURAL

BEAUTY LOOKS

IS UP TO YOU

For more information please visit the official Cannock Chase AONB website at http://www.cannock-chase.co.uk/

For more information please visit the official Cannock Chase AONB website at http://www.cannock-chase.co.uk/


Fly Tipping


Chaffinch


Foxglove


Birches Valley Forest


Drug Abuse

YOU CAN DECIDE WHAT CANNOCK CHASE AREA OF NATURAL BEAUTY IS HOME TO


Hedgehog


Soil Erosion


Dog Fouling
Littering


Arson


Fallow Deer

For more information please visit the official Cannock Chase AONB website at http://www.cannock-chase.co.uk/

Appendix 7 – Phase 2 Final Poster Design

HOW CANNOCK CHASE AONB LOOKS IS UP TO YOU

Wildlife Car Fatalities

Wildlife Alive and Well

Littering, Arson & Habitat Destruction

CARE AND SHARE

CUT AND CURB

Clear and Thriving

Dog Fouling

Free from Fouling

For more information please visit the official Cannock Chase AONB website at http://www.cannock-chase.co.uk/

Appendix 8 – Phase 2 Intervention Survey Instructions to Participants

1. Instructions sent at beginning of Intervention Survey

Dear Sir/Madam,

I am currently studying at the University of Wolverhampton for my PhD, which looks into the nationwide environmental attitudes of users of Cannock Chase AONB.

Would it be possible for the email below to be sent out to staff/volunteers within (NAME OF ORGANISATION/GROUP HERE) to personally participate in my survey if they wish?

All responses will be greatly appreciated

Thank you

Yours faithfully

Clare Jackaman

Cannock Chase Survey

Hi,

I am currently studying at the University of Wolverhampton for my PhD, which looks into the nationwide environmental attitudes of users of Cannock Chase AONB.

If you would like to participate in the study, there are four short elements you would need to complete in the following order:

(1st) From this email: Viewing of Cannock Chase poster by clicking the Begin Survey button below (opens onto poster using SurveyMonkey)

(2nd) From this email: Completion of questionnaire, which can be found immediately below the poster in SurveyMonkey (questionnaire takes approximately 10-15mins)

(3rd) Two months from today: Completion of follow-up questionnaire – the access email to this questionnaire in SurveyMonkey will be sent out to you in two months' time (questionnaire takes approximately 10-15mins)

(4th) Six months from today: Completion of follow-up questionnaire – the access email to this questionnaire in SurveyMonkey will be sent out to you in six months' time (questionnaire takes approximately 10-15mins)

If you know anyone inside/outside of (NAME OF ORGANISATION/GROUP HERE) who might also like to participate in this study, please feel free to forward this email to them.

I have defined Cannock Chase AONB's user group as – if you use Cannock Chase at least once a year, or more.

Note: for completing the questionnaire, please base responses on your most recent visit to Cannock Chase.

All responses will be greatly appreciated

Thank you

Yours faithfully

Clare Jackaman
University of Wolverhampton
George Wallis (MK) Building
Molineux Street
Wolverhampton
WV1 1DT
Tel: [number redacted]
Fax: [number redacted]

Email: [e-mail address redacted]

Begin Survey

2. Instructions sent two months into Intervention Survey

Dear Sir/Madam,

Thank you for viewing my poster and for your/your team's responses to my questionnaire I sent a couple of months ago, that form part of my PhD study.

Would it be possible for the email below to be sent out to staff/volunteers within (NAME OF ORGANISATION/GROUP HERE) to personally participate in the follow-up questionnaire if they wish?

All responses will be greatly appreciated

Thank you again and best wishes

Yours faithfully

Clare Jackaman

Cannock Chase Survey

Hi,

Thank you for viewing my poster and for your responses to my questionnaire I sent a couple of months ago, that form part of my PhD study.

If you would like to complete your participation in this study, there are two remaining short elements you would need to do in the following order:

(1st) From this email: Completion of initial follow-up questionnaire – by clicking the Begin Survey button below which opens onto the questionnaire using SurveyMonkey (questionnaire takes approximately 10-15mins)

(2nd) Four months from today: Completion of final follow-up questionnaire – the access email to this questionnaire in SurveyMonkey will be sent out to you in four months' time (questionnaire takes approximately 10-15mins)

If you know anyone inside/outside of (NAME OF ORGANISATION/GROUP HERE) who might also like to participate in this study and has not already done so, please feel free to forward this email and my original email to them.

I have defined Cannock Chase AONB's user group as – if you use Cannock Chase at least once a year, or more.

Note: for completing the questionnaire, please base responses on your most recent visit to Cannock Chase.

All responses will be greatly appreciated

Thank you

Yours faithfully

Clare Jackaman
University of Wolverhampton
George Wallis (MK) Building
Molineux Street
Wolverhampton
WV1 1DT

Tel: [number redacted]
Fax: [number redacted]

Email: [e-mail address redacted]

Begin Survey

3. Instructions sent six months into Intervention Survey

Dear Sir/Madam,

Thank you for your/your team's responses to my questionnaire I sent a few months ago, that form part of my PhD study.

Would it be possible for the email below to be sent out to staff/volunteers within (NAME OF ORGANISATION/GROUP HERE) to personally participate in the final follow-up questionnaire if they wish?

All responses will be greatly appreciated

Thank you again and best wishes

Yours faithfully

Clare Jackaman

Cannock Chase Survey

Hi,

Thank you for your responses to my questionnaire I sent a few months ago, that form part of my PhD study.

If you would like to complete your participation in this study, there is one final short element to do:

From this email: Completion of final follow-up questionnaire – by clicking the Begin Survey button below which opens onto the questionnaire using SurveyMonkey (questionnaire takes approximately 10-15mins)

If you know anyone inside/outside of (NAME OF ORGANISATION/GROUP HERE) who might also like to participate in this study and has not already done so, please feel free to forward this email and my two previous emails to them.

I have defined Cannock Chase AONB's user group as – if you use Cannock Chase at least once a

year, or more.

Note: for completing the questionnaire, please base responses on your most recent visit to Cannock Chase.

All responses will be greatly appreciated

Thank you

Yours faithfully

Clare Jackaman
University of Wolverhampton
George Wallis (MK) Building
Molineux Street
Wolverhampton
WV1 1DT

Tel: [number redacted]
Fax: [number redacted]

Email: [e-mail address redacted]

Begin Survey

Appendix 9 – BRUMS Mood Scale

	Not at all	A little	Moderately	Quite a bit	Extremely
Panicky	0	1	2	3	4
Lively	0	1	2	3	4
Confused	0	1	2	3	4
Worn out	0	1	2	3	4
Depressed	0	1	2	3	4
Downhearted	0	1	2	3	4
Annoyed	0	1	2	3	4
Exhausted	0	1	2	3	4
Mixed-up	0	1	2	3	4
Sleepy	0	1	2	3	4
Bitter	0	1	2	3	4
Unhappy	0	1	2	3	4
Anxious	0	1	2	3	4
Worried	0	1	2	3	4
Energetic	0	1	2	3	4
Miserable	0	1	2	3	4
Muddled	0	1	2	3	4
Nervous	0	1	2	3	4
Angry	0	1	2	3	4
Active	0	1	2	3	4
Tired	0	1	2	3	4
Bad tempered	0	1	2	3	4
Alert	0	1	2	3	4
Uncertain	0	1	2	3	4

Appendix 10 – Ten Experimental Mood Scale Adjectives

	Not at all	A little	Moderately	Quite a bit	Extremely
Overloaded	0	1	2	3	4
Disgust	0	1	2	3	4
Joy	0	1	2	3	4
Guilt	0	1	2	3	4
Satisfied	0	1	2	3	4
Shame	0	1	2	3	4
Indifferent	0	1	2	3	4
Fear	0	1	2	3	4
Resentful	0	1	2	3	4
Proud	0	1	2	3	4

Appendix 4 – Phase 1 Quantitative Study Results Tables

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Non-User	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4.00	4	4	3	5	4	5	2	5	1	4	1	4	3	5
	N	4.00	210	210	210	210	210	209	210	210	209	210	210	207	210	210
	SD	4.00	1.193	1.168	1.088	1.138	1.170	0.894	1.045	0.770	1.139	1.230	1.387	1.007	1.169	1.096
User	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	4.00	2	4	3	4	4	5	3	5	3	3	1	4	3	3
	N	4.00	675	677	676	676	668	673	671	677	676	676	670	670	676	675
	SD	4.00	1.192	1.111	1.049	1.042	1.143	0.903	1.115	0.922	1.124	1.075	1.248	1.041	1.182	1.047

Table 32: replacement: Comparison of median and mode from Phase 1 Quantitative Responses based on user/ non-user status

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi-Coefficient Value	Cramer's V Value
1	14.694	4	0.005	0.129	0.129
2	12.293	4	0.015	0.118	0.118
3	9.969	4	0.041	0.106	0.106
4	1.959	4	0.743	0.047	0.047
5	21.033	4	0.000	0.154	0.154
6	16.705	4	0.002	0.138	0.138
7	14.139	4	0.007	0.127	0.127
8	22.170	4	0.000	0.159	0.159
9	34.111	4	0.000	0.196	0.196
10	28.611	4	0.000	0.180	0.180
11	29.180	4	0.000	0.181	0.181
12	13.218	4	0.010	0.123	0.123
13	13.170	4	0.010	0.123	0.123
14	7.561	4	0.109	0.092	0.092
15	27.779	4	0.000	0.177	0.177

Table 33: Chi-squared test of Phase 1 Quantitative responses based on user/ non-user status

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Male	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	4	2	4	3	4	4	5	2	5	3	4	1	4	3	3
	N	322	322	321	321	322	318	320	318	321	322	322	319	316	321	322
	SD	1.208	1.211	1.157	1.096	1.061	1.252	0.919	1.149	0.890	1.199	1.133	1.322	1.056	1.228	1.103
Female	Median	3.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	3.00	2.00	4.00	3.00	3.00
	Mode	3	3	4	3	4	4	5	3	4	3	3	1	5	3	3
	N	353	351	354	353	352	348	351	351	354	352	352	350	352	353	351
	SD	1.082	1.166	1.061	0.998	1.024	1.026	0.891	1.076	0.941	1.044	1.013	1.177	1.029	1.131	0.993

Table 34: replacement: Comparison of median and mode from Phase 1 Quantitative Responses based on gender

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi-Coefficient Value	Cramer's V Value
1	17.779	4	0.001	0.162	0.162
2	8.967	4	0.062	0.115	0.115
3	7.195	4	0.126	0.103	0.103
4	19.687	4	0.001	0.171	0.171
5	4.403	4	0.354	0.081	0.081
6	20.523	4	0.000	0.176	0.176
7	7.098	4	0.131	0.103	0.103
8	13.335	4	0.010	0.141	0.141
9	10.522	4	0.032	0.125	0.125
10	12.521	4	0.014	0.136	0.136
11	18.752	4	0.001	0.167	0.167
12	9.188	4	0.057	0.117	0.117
13	6.046	4	0.196	0.095	0.095
14	15.812	4	0.003	0.153	0.153
15	15.792	4	0.003	0.153	0.153

Table 35: Chi-squared test of Phase 1 Quantitative responses based on gender

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16-18	Median	4.00	3.00	4.00	3.00	3.00	4.00	5.00	3.00	4.00	3.00	4.00	3.00	4.00	3.00	3.00
	Mode	4	3	4	3	3	4	5	3	4	3	4	3	4	3	3
	N	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
	SD	1.068	0.855	1.050	0.899	0.967	0.760	1.214	0.927	1.013	0.641	0.877	1.423	0.707	1.050	0.967
19-21	Median	4.00	2.50	4.00	3.00	4.00	4.00	5.00	3.00	4.00	2.50	3.50	2.00	3.50	3.00	3.00
	Mode	4	2	4	3	4	4	5	3	4	3	4	1	4	4	3
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
	SD	1.393	1.251	1.311	1.222	1.342	1.139	1.292	1.216	1.069	1.016	1.424	1.447	1.188	1.072	1.277
22-24	Median	3.50	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	3.50	2.00	4.00	3.00	3.00
	Mode	3	2	4	3	4	4	5	2	5	3	3	1	4	3	3
	N	32	32	32	32	32	30	32	31	32	32	32	32	31	32	32
	SD	1.076	1.019	0.871	0.878	0.801	1.053	0.523	0.945	0.840	1.047	0.984	1.335	1.016	1.174	0.837
25-34	Median	3.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	3.00	3.00	4.00	3.00	3.00
	Mode	3	2	4	3	4	4	5	3	4	3	3	2	4	3	3
	N	159	158	158	158	158	158	158	159	159	159	159	158	157	158	158
	SD	1.176	1.185	1.119	0.898	1.006	1.093	0.922	1.095	0.871	1.093	1.092	1.223	1.027	1.081	1.020
35-44	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	3.00	2.00	4.00	3.00	3.00
	Mode	3	2	4	3	4	4	5	3	4	3	3	3	4	3	3
	N	179	179	179	179	179	176	176	178	179	179	179	175	178	179	179
	SD	1.008	1.182	1.073	1.012	0.998	1.105	0.823	1.073	0.864	1.070	0.990	1.176	0.987	1.140	0.961
45-54	Median	4.00	2.00	4.00	3.00	4.00	3.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	3	2	4	3	5	3	5	3	5	3	4	1	5	3	3
	N	130	131	132	131	132	131	131	129	132	131	132	131	132	132	132
	SD	1.087	1.185	1.164	1.116	1.037	1.173	0.888	1.086	0.948	1.121	1.037	1.179	1.045	1.136	1.081
55-64	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	3	1	4	3	4	5	5	3	5	3	4	1	5	4	3
	N	72	73	72	73	71	71	72	71	73	71	71	72	70	71	71
	SD	1.151	1.332	1.132	1.123	1.168	1.200	1.160	1.094	1.036	1.205	1.200	1.284	1.135	1.324	1.186

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
65-74	Median	4.00	3.00	5.00	3.00	4.50	4.00	5.00	2.00	5.00	3.00	4.00	2.00	4.00	3.00	4.00
	Mode	5	3	5	3	5	5	5	1	5	3	5	1	5	1	5
	N	61	60	60	59	60	59	60	59	59	60	59	60	58	60	59
	SD	1.380	1.149	0.976	1.327	1.055	1.266	0.739	1.279	0.948	1.273	1.085	1.354	1.128	1.411	1.096
75-84	Median	4.50	2.00	5.00	3.00	4.00	4.00	5.00	3.00	5.00	3.00	4.00	3.00	5.00	3.00	3.50
	Mode	5	1	5	3	5	3	5	3	5	3	4	3	5	3	3
	N	12	10	12	12	12	11	12	12	11	12	12	10	12	12	12
	SD	0.866	1.317	1.055	0.965	1.379	1.293	0.669	1.311	1.027	1.477	1.288	1.252	0.651	1.422	1.231

Table 36: replacement: Comparison of median and mode from Phase 1 Quantitative Responses based on age

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi-Coefficient Value	Cramer's V Value
1	54.334	32	0.008	0.284	0.142
2	40.719	32	0.139	0.247	0.123
3	61.525	32	0.001	0.303	0.151
4	65.324	32	0.000	0.312	0.156
5	47.486	32	0.038	0.266	0.133
6	46.454	32	0.047	0.265	0.132
7	39.352	32	0.174	0.243	0.121
8	36.958	32	0.251	0.236	0.118
9	57.492	32	0.004	0.292	0.146
10	32.222	32	0.456	0.219	0.110
11	45.574	32	0.057	0.261	0.130
12	39.644	32	0.166	0.244	0.122
13	44.619	32	0.068	0.259	0.130
14	44.956	32	0.064	0.259	0.129
15	48.737	32	0.029	0.270	0.135

Table 37: Chi-squared test of Phase 1 Quantitative responses based on age

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	5.00	3.00	4.00	3.00	5.00	3.00	3.00
	Mode	4	2	4	2	4	5	5	3	5	3	4	1	5	3	3
	N	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	SD	1.300	0.964	1.003	1.049	1.049	1.465	0.612	1.219	0.761	1.212	1.165	1.264	0.895	1.243	1.172
B	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	4	2	4	3	4	4	5	2	4	3	4	2	4	3	3
	N	117	117	117	117	117	116	116	116	117	116	117	117	116	117	117
	SD	1.118	1.149	1.137	1.082	0.969	1.083	1.066	0.919	0.836	1.131	0.993	1.257	1.049	1.153	0.988
C1	Median	4.00	2.50	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	4	2	4	3	4	4	5	3	4	3	4	1	4	4	3
	N	277	278	280	278	280	276	278	278	280	279	279	278	275	278	278
	SD	1.134	1.135	1.081	0.969	1.047	1.118	0.858	1.104	0.892	1.024	1.092	1.193	0.987	1.089	1.014
C2	Median	3.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	3.00	3.00	4.00	3.00	3.00
	Mode	3	4	5	3	5	5	5	3	5	3	3	1	4	3	3
	N	51	51	50	51	50	51	49	51	51	51	51	49	51	51	51
	SD	1.065	1.342	1.173	1.002	0.966	1.063	0.793	1.143	0.784	1.153	1.120	1.292	0.973	1.262	1.074
D	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	4.00	2.00	4.00	3.00	4.00
	Mode	5	2	5	3	5	4	5	3	5	3	4	1	4	4	3
	N	67	67	67	67	66	64	67	65	67	66	67	65	65	67	67
	SD	1.126	1.293	1.079	1.119	1.045	1.188	0.989	1.274	1.173	1.229	1.042	1.413	1.166	1.259	1.146
E	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	4.00
	Mode	5	3	5	3	5	5	5	3	5	3	3	1	5	3	3
	N	113	111	111	112	111	109	111	109	110	112	110	111	111	111	110
	SD	1.232	1.254	1.080	1.162	1.128	1.277	0.893	1.244	1.035	1.208	1.079	1.287	1.085	1.345	1.098

Table 38: replacement: Comparison of median and mode from Phase 1 Quantitative Responses based on occupation

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi-Coefficient Value	Cramer's V Value
1	24.903	20	0.205	0.197	0.098
2	32.476	20	0.038	0.225	0.112
3	41.183	20	0.004	0.253	0.126
4	38.772	20	0.007	0.245	0.123
5	25.953	20	0.167	0.201	0.100
6	23.620	20	0.259	0.193	0.096
7	30.184	20	0.067	0.217	0.109
8	38.503	20	0.008	0.246	0.123
9	28.809	20	0.092	0.212	0.106
10	30.164	20	0.067	0.217	0.108
11	17.085	20	0.647	0.163	0.082
12	19.700	20	0.477	0.176	0.088
13	24.377	20	0.226	0.196	0.098
14	24.417	20	0.225	0.195	0.097
15	27.997	20	0.109	0.209	0.104

Table 39: Chi-squared test of Phase 1 Quantitative responses based on occupation

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Level 2	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	4.00
	Mode	5	3	4	3	4	4	5	2	5	3	4	1	5	3	3
	N	81	81	81	80	81	79	81	81	81	81	80	80	80	81	81
	SD	1.251	1.129	1.170	0.993	1.173	1.168	0.909	1.095	1.012	1.034	1.105	1.320	1.100	1.306	1.091
Level 3	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	3	2	4	3	4	4	5	3	4	3	4	1	5	3	3
	N	92	92	92	92	91	91	91	88	92	92	91	90	91	91	91
	SD	1.094	1.194	1.034	0.910	0.937	1.125	0.939	1.134	0.896	1.033	1.021	1.175	0.948	1.128	1.026
Level 4	Median	4.00	2.00	4.00	3.00	4.00	3.00	5.00	2.00	4.00	3.00	3.00	2.00	4.00	3.00	4.00
	Mode	4	2	4	4	4	5	5	2	4	3	3	1	5	4	3
	N	31	31	31	31	30	31	31	30	31	31	31	31	31	31	31
	SD	1.018	1.050	0.944	1.138	0.890	1.288	0.923	1.124	1.078	1.222	1.061	1.249	0.833	1.317	0.791
Level 5	Median	4.00	3.00	3.50	3.50	4.00	4.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	2.50	3.00
	Mode	4	4	4	4	4	4	5	2	4	1	5	1	5	1	3
	N	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18
	SD	1.338	1.451	1.309	1.179	1.200	1.150	1.309	1.338	1.195	1.335	1.372	1.720	1.185	1.425	1.294
Level 6	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	3.00	2.00	4.00	3.00	3.00
	Mode	4	4	4	3	4	4	5	3	5	3	3	1	4	3	3
	N	202	201	202	202	202	200	200	202	202	201	202	202	201	201	201
	SD	1.167	1.183	1.038	1.018	1.066	1.109	0.828	1.080	0.791	1.111	1.075	1.176	1.046	1.105	1.048
Level 7	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	3.00	3.00
	Mode	4	2	4	3	5	4	5	2	5	1	4	1	4	3	3
	N	90	91	91	91	90	91	90	90	91	91	91	90	91	91	91
	SD	1.163	1.150	1.078	1.057	0.921	1.185	1.110	0.982	0.918	1.134	1.055	1.181	1.080	1.094	1.067
Level 8	Median	4.00	2.00	3.00	3.00	4.00	3.00	5.00	3.00	5.00	2.00	3.00	1.00	4.00	3.00	4.00
	Mode	5	1	4	3	4	3	5	3	5	1	3	1	4	3	4
	N	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	SD	1.457	1.280	1.486	1.187	1.100	1.397	0.743	1.356	1.100	1.033	1.352	0.941	1.060	1.280	1.113

Table 40: replacement: Comparison of median and mode from Phase 1 Quantitative Responses based on highest academic qualification

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi-Coefficient Value	Cramer's V Value
1	24.446	28	0.658	0.204	0.102
2	34.969	28	0.171	0.244	0.122
3	59.000	28	0.001	0.317	0.158
4	30.263	28	0.351	0.227	0.113
5	32.480	28	0.255	0.235	0.118
6	28.615	28	0.432	0.222	0.111
7	28.475	28	0.439	0.220	0.110
8	38.285	28	0.093	0.256	0.128
9	43.426	28	0.032	0.272	0.136
10	45.955	28	0.018	0.279	0.140
11	33.695	28	0.211	0.239	0.120
12	36.462	28	0.131	0.250	0.125
13	22.044	28	0.779	0.194	0.097
14	50.279	28	0.006	0.292	0.146
15	19.452	28	0.884	0.182	0.091

Table 41: Chi-squared test of Phase 1 Quantitative responses based on highest academic qualification

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AL	Median	4.00	3.00	4.00	3.00	3.50	4.00	4.00	2.00	4.00	2.50	3.50	3.50	4.00	3.50	3.50
	Mode	.	.	.	.	.	.	.	.		..	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	1.414	1.414	1.414	0.000	0.707	1.414	1.414	1.414	1.414	0.707	0.707	0.707	1.414	0.707	0.707
B	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	3.00	2.00	4.00	3.00	3.00
	Mode	3	3	5	3	4	4	5	3	5	3	3	3	5	3	3
	N	69	68	68	69	69	66	69	67	69	69	69	67	68	69	69
	SD	1.156	1.330	1.136	1.057	0.929	1.116	0.930	1.122	0.890	1.100	1.132	1.219	1.085	1.234	1.037
BB	Median	4.00	3.00	4.00	3.00	4.00	4.00	4.00	3.00	4.00	3.00	2.00	2.00	4.00	3.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BD	Median	3.00	3.00	5.00	4.00	5.00	5.00	5.00	3.00	4.00	3.00	2.00	1.00	2.00	2.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD															
BH	Median	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD															
BN	Median	3.00	2.50	4.00	3.50	4.00	3.00	5.00	3.00	4.50	2.50	3.00	1.00	4.50	3.50	3.00
	Mode	3	2	4	4	4	3	5	3	5	3	3	1	5	4	3
	N	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	SD	0.816	0.957	0.000	0.957	0.816	0.816	0.500	0.816	0.957	0.957	1.000	1.500	0.577	1.414	0.816
CB	Median	3.00	5.00	5.00	4.50	4.50	5.00	3.00	4.50	4.00	5.00	2.50	5.00	3.00	3.00	3.00
	Mode	3	5	5	5	5	5	5	5	5	5	.	5	.	3	3
	N	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	SD	1.633	0.500	1.000	1.414	1.414	1.000	2.309	0.577	1.500	0.500	1.708	2.000	1.826	1.633	1.258

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CF	Median	3.00	3.00	2.50	3.50	4.50	4.00	4.50	2.00	4.00	2.00	4.00	3.50	3.00	4.50	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	1.414	1.414	0.707	0.707	0.707	0.000	0.707	0.000	0.000	0.000	0.000	2.121	2.828	0.707	0.000
CH	Median	5.00	2.00	5.00	3.00	5.00	5.00	5.00	1.00	3.00	3.00	3.00	2.00	5.00	4.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD															
CV	Median	3.00	3.00	4.00	4.00	4.00	3.00	4.50	2.00	4.00	3.00	3.00	2.00	4.00	2.00	3.00
	Mode	3	4	4	4	4	3	5	2	4	3	3	2	4	2	3
	N	9	9	9	9	9	9	8	8	9	9	9	9	9	9	9
	SD	0.782	0.928	0.928	0.707	0.928	1.054	0.744	0.707	0.972	0.782	0.726	0.782	0.882	1.093	0.707
CW	Median	3.50	2.50	4.00	3.00	4.00	3.00	4.00	2.50	3.50	3.00	3.00	2.00	4.00	2.50	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.707	0.707	1.414	0.000	1.414	0.000	1.414	0.707	0.707	0.000	0.000	1.414	1.414	0.707	0.000
DE	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	4.00	3.00	4.00	4.00	4.00
	Mode	4	4	4	3	5	4	5	3	4	3	3	3	4	4	4
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	SD	1.291	1.136	0.866	0.913	1.128	1.080	0.577	1.000	0.816	1.068	1.075	1.258	0.987	1.180	0.816
DY	Median	4.00	2.00	4.50	2.00	4.50	3.00	5.00	2.00	4.50	2.50	4.50	1.50	4.50	2.50	4.00
	Mode	4	2	5	2	4	4	5	2	5	.	5	1	5	.	4
	N	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	SD	0.000	1.258	1.414	0.816	0.577	1.500	0.000	1.732	0.957	1.291	0.957	1.414	1.414	1.291	0.500
E	Median	5.00	3.00	4.00	3.00	4.00	5.00	5.00	3.00	4.00	4.00	3.00	3.00	3.00	4.00	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
FK	Median	5.00	4.00	5.00	.	4.00	4.00	5.00	1.00	5.00	5.00	5.00	1.00	5.00	1.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1		1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
GL	Median	3.50	4.00	4.50	2.50	3.00	3.00	4.50	2.50	4.00	2.00	4.00	3.00	4.50	2.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.707	0.000	0.707	0.707	1.414	1.414	0.707	0.707	0.000	0.000	1.414	1.414	0.707	0.000	1.414
HP	Median	3.00	4.00	3.50	3.50	3.00	3.00	3.50	3.00	4.00	2.50	2.50	3.00	4.00	3.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.000	0.000	0.707	0.707	0.000	0.000	0.707	0.000	0.000	0.707	0.707	0.000	0.000	0.000	0.000
IG	Median	4.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	4.00	3.00	1.00	1.00	2.00	3.00	2.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
KT	Median	5.00	4.00	5.00	3.00	5.00	3.00	5.00	4.00	5.00	1.00	5.00	1.00	5.00	3.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
L	Median	4.00	2.00	5.00	4.00	5.00	4.00	5.00	3.00	4.00	3.00	4.00	2.00	5.00	4.00	5.00
	Mode	4	1	5	3	5	5	5	3	4	4	5	1	5	3	5
	N	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	SD	1.225	1.509	0.882	0.833	0.726	1.424	1.130	1.424	0.707	1.414	1.093	1.740	0.882	0.833	1.093
LC	Median	5.00	1.00	5.00	5.00	5.00	5.00	3.00	5.00	4.00	5.00	5.00	1.00	5.00	5.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD															

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LE	Median	3.00	4.00	4.00	3.50	3.50	4.00	4.50	2.50	4.00	3.00	3.00	3.50	3.00	3.50	3.00
	Mode	4	4	4	4	3	4	5	2	4	3	3	4	3	4	3
	N	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	SD	1.197	1.269	1.418	0.966	0.966	0.675	1.287	0.949	0.738	1.033	0.816	1.476	1.075	1.229	1.033
LL	Median	4.00	3.00	2.00	4.00	3.00	4.00	3.50	1.50	4.50	3.00	4.00	3.00	3.00	3.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.000	1.414	0.000	0.000	1.414	0.000	0.707	0.707	0.707	1.414	0.000	1.414	1.414	1.414	1.414
LS	Median	3.00	3.00	3.00	3.00	3.00	4.50	4.50	2.50	4.00	3.00	3.00	3.50	4.00	4.00	3.50
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.000	1.414	1.414	0.000	1.414	0.707	0.707	0.707	0.000	0.000	0.000	2.121	0.000	0.000	0.707
LU	Median	1.00	2.00	2.00	4.00	4.00	4.00	5.00	2.00	3.00	4.00	3.00	1.00	3.00	4.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
M	Median	1.50	1.50	2.50	2.00	2.50	5.00	4.50	3.50	4.50	2.00	1.50	1.50	4.00	4.00	2.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.707	0.707	2.121	1.414	2.121	0.000	0.707	2.121	0.707	1.414	0.707	0.707	1.414	1.414	1.414
MK	Median	2.00	4.50	4.00	3.50	4.00	5.00	3.50	1.50	4.50	3.00	2.50	4.00	4.50	4.00	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	1.414	0.707	0.000	0.707	0.000	0.000	0.707	0.707	0.707	1.414	2.121	0.000	0.707	0.000	1.414
N	Median	4.00	4.00	4.00	4.00	4.00	3.00	4.00	2.00	5.00	1.00	3.00	3.00	4.00	3.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
NE	Median	3.50	3.00	4.50	4.00	4.00	4.00	5.00	3.00	5.00	3.00	4.00	3.50	4.00	4.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	2.121	0.000	0.707	0.000	0.000	1.414	0.000	1.414	0.000	1.414	0.000	0.707	0.000	0.000	0.000
NG	Median	3.00	2.50	4.00	4.00	3.50	3.50	5.00	3.00	3.00	3.00	3.50	2.50	4.50	3.50	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	3	2	2	2	2	2	2	2	2	2	2	2	2	2	1
	SD	1.000	0.707	1.414	0.000	0.707	2.121	0.000	0.000	0.000	0.000	0.707	0.707	0.707	0.707	.
NN	Median	3.50	2.50	4.50	4.00	4.50	2.50	4.50	2.50	4.50	2.00	4.00	3.50	4.00	3.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.707	0.707	0.707	0.000	0.707	2.121	0.707	0.707	0.707	1.414	0.000	0.707	1.414	1.414	0.000
NR	Median	3.00	3.00	2.50	3.00	3.50	3.00	3.50	3.50	3.00	3.50	3.00	4.00	3.00	2.50	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.000	0.000	0.707	0.000	0.707	0.000	0.707	0.707	0.000	0.707	0.000	0.000	1.414	0.707	0.000
PL	Median	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	5.00	4.00	3.00	3.00	3.00	3.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
RH	Median	4.00	2.00	3.00	2.00	3.00	3.00	4.00	3.00	4.00	2.00	3.00	3.00	4.00	3.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
RM	Median	5.00	4.00	4.00	1.00	5.00	4.00	5.00	4.00	5.00	1.00	3.00	1.00	5.00	2.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S	Median	5.00	2.00	4.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00	2.00	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SE	Median	4.00	4.00	4.00	3.00	4.00	5.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	1.00	3.00
	Mode	.	.	.	.	.	5	5	.	5	.	4	.	.	1	.
	N	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	SD	1.000	2.082	1.000	2.000	1.000	1.155	1.155	1.000	1.155	1.528	0.577	1.528	1.528	1.155	1.528
SG	Median	4.00	3.00	5.00	4.00	3.00	5.00	5.00	3.00	4.00	3.00	4.00	3.00	3.00	4.00	3.00
	Mode	.	.	5	4	3	5	5	3	.	3	.	.	.	.	3
	N	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	SD	1.000	1.000	1.732	1.155	1.155	0.577	0.577	0.577	1.000	0.577	1.000	1.528	1.528	1.000	1.155
SK	Median	3.00	3.00	4.00	3.00	3.00	4.00	4.00	3.00	3.00	3.00	3.00	3.00	4.00	3.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SN	Median	4.00	2.00	4.00	4.00	4.00	4.00	4.00	2.00	5.00	4.00	2.00	3.00	5.00	2.00	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ST	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	3.00	3.00
	Mode	3	2	4	3	4	4	5	1	5	2	4	1	5	3	3
	N	116	117	117	117	116	115	116	117	117	116	117	117	116	117	116
	SD	1.120	1.208	1.116	1.074	1.042	1.157	0.880	1.058	1.041	1.168	1.075	1.196	0.999	1.208	1.123
SW	Median	4.00	3.00	4.00	3.00	4.00	5.00	3.00	3.00	4.00	2.00	4.00	2.00	3.00	3.00	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SY	Median	1.00	4.00	4.00	2.00	4.00	5.00	5.00	3.00	5.00	5.00	2.00	5.00	4.00	1.00	4.00
	Mode	1	4	.	2	.	5	5	.	5	5	.	2	.	1	.
	N	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	SD	1.732	0.000	1.000	0.577	1.528	0.577	0.577	1.528	0.577	0.577	1.528	1.732	1.528	1.155	2.082
TA	Median	5.00	2.00	4.00	3.00	3.00	3.00	4.00	3.00	3.00	2.00	4.00	3.00	5.00	3.00	4.00
	Mode	5	.	.	.	3	.	4	3	.	.	4	.	5	.	.
	N	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	SD	1.155	1.528	1.000	1.528	1.155	1.000	0.577	1.155	1.000	1.528	0.000	2.000	0.577	1.528	1.000
TD	Median	3.00	4.00	4.00	3.00	4.00	5.00	5.00	2.00	4.00	4.00	3.00	2.00	4.00	3.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
TF	Median	3.00	3.00	3.50	3.00	4.00	4.00	4.00	2.50	4.00	3.00	4.00	2.50	4.00	3.00	3.50
	Mode	3	3	3	3	5	4	5	3	4	3	3	3	4	3	3
	N	26	26	26	25	26	25	26	26	26	26	26	26	26	26	26
	SD	1.192	0.983	1.303	1.179	1.084	1.128	0.919	1.018	0.980	1.172	0.962	1.068	1.079	0.905	1.087
TN	Median	4.00	2.00	4.00	2.00	5.00	1.00	5.00	2.00	5.00	2.00	4.00	1.00	4.00	2.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
TS	Median	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
TW	Median	4.00	4.00	4.00	2.00	4.00	4.00	5.00	4.00	4.00	2.00	4.00	2.00	4.00	4.00	2.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
WS	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	3	2	4	3	4	4	5	2	5	3	3	1	5	3	3
	N	266	264	265	266	264	261	263	262	264	266	264	260	260	264	265
	SD	1.127	1.179	1.102	1.028	1.067	1.126	0.930	1.134	0.947	1.086	1.075	1.196	1.030	1.172	1.052
WV	Median	3.50	2.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	4	2	4	3	4	4	5	3	5	3	4	2	4	3	3
	N	62	62	63	62	63	63	62	62	63	63	63	63	63	63	63
	SD	1.192	1.144	1.170	1.089	1.129	1.268	0.882	1.141	0.871	1.090	1.103	1.268	1.049	1.243	1.014

Table 42: replacement: Comparison of median and mode from Phase 1 Quantitative Responses based on home postcode

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi-Coefficient Value	Cramer's V Value
1	210.789	200	0.287	0.563	0.282
2	215.737	200	0.212	0.571	0.285
3	168.775	200	0.947	0.504	0.252
4	197.679	196	0.453	0.546	0.273
5	177.647	200	0.870	0.518	0.259
6	204.591	200	0.397	0.559	0.279
7	190.622	200	0.671	0.537	0.269
8	208.063	200	0.333	0.562	0.281
9	127.292	200	1.000	0.438	0.219
10	254.338	200	0.006	0.618	0.309
11	224.738	200	0.111	0.582	0.291
12	244.530	200	0.017	0.610	0.305
13	191.473	200	0.655	0.539	0.270
14	200.655	200	0.474	0.550	0.275
15	172.902	200	0.917	0.511	0.255

Table 43: Chi-squared test of Phase 1 Quantitative responses based on home postcode

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
This my first visit	Median	3.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	3	2	4	3	4	5	5	3	5	3	4	1	5	3	3
	N	102	102	102	101	102	99	102	99	102	102	102	100	101	102	102
	SD	1.165	1.235	1.022	0.909	1.034	1.164	0.883	1.096	0.957	1.102	1.077	1.267	1.126	1.147	1.002
Daily	Median	3.50	3.00	4.00	3.00	4.00	4.00	4.00	3.00	4.00	3.00	4.00	3.00	4.00	3.00	3.00
	Mode	3	4	4	3	5	5	4	3	5	2	5	3	4	3	3
	N	12	12	11	12	12	12	12	12	12	12	12	12	12	12	12
	SD	1.311	1.138	1.000	0.778	1.138	1.215	1.128	1.155	1.206	1.165	1.337	1.231	1.168	1.128	1.084
2/3 times per week	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	5.00	3.00	4.00	2.00	4.00	3.00	4.00
	Mode	5	2	5	4	5	5	5	1	5	1	5	1	5	4	5
	N	60	59	60	60	59	59	60	59	60	59	60	59	60	60	60
	SD	1.274	1.235	1.245	1.260	1.361	1.365	0.964	1.292	1.086	1.265	1.191	1.451	1.065	1.355	1.258
About once a week	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	2	5	3	4	4	5	2	5	3	4	1	4	3	3
	N	85	85	86	86	86	86	85	85	86	87	85	83	85	86	86
	SD	1.152	1.206	1.187	1.101	1.039	1.100	0.766	0.923	0.999	1.127	1.108	1.181	1.090	1.260	1.141
About once a fortnight	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	3	2	4	3	4	4	5	2	5	3	3	3	5	3	3
	N	66	66	66	66	66	65	64	64	65	66	66	66	65	66	66
	SD	1.080	1.206	1.185	1.088	0.909	1.115	1.178	1.142	0.989	1.096	1.013	1.112	1.050	1.188	0.992

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
About once a month	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	4	4	4	3	4	4	5	3	4	3	4	2	4	3	3
	N	115	115	115	115	115	113	115	115	115	114	115	114	113	115	114
	SD	1.211	1.213	1.094	1.020	1.046	1.017	0.862	1.189	0.944	1.091	1.127	1.187	0.997	1.051	1.027
About once in 3 months	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	3.00	2.00	4.00	3.00	3.00
	Mode	4	2	4	3	4	4	5	2	4	3	4	1	4	3	3
	N	112	112	112	112	111	112	111	112	112	112	112	112	111	112	111
	SD	1.115	1.172	1.111	1.053	1.038	1.266	0.813	1.090	0.710	1.164	1.071	1.323	0.933	1.274	1.077
About once in 6 months	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	3.00	2.00	4.00	3.00	3.00
	Mode	4	3	4	3	4	4	5	3	4	3	3	2	4	3	3
	N	63	63	63	62	63	62	63	63	63	63	63	63	63	62	63
	SD	0.931	1.082	1.027	1.042	0.896	0.907	0.880	1.013	0.821	0.991	0.948	1.099	0.992	1.059	0.869
Less than once in 6 months	Median	3.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	3.00	3.00	4.00	3.00	3.50
	Mode	3	3	4	3	5	4	5	3	5	3	3	3	5	3	3
	N	57	56	57	57	57	56	56	57	57	56	56	56	55	56	56
	SD	1.135	1.151	1.061	1.025	0.973	1.199	0.952	1.034	0.797	1.100	0.987	1.381	1.118	1.077	0.909

Table 44: replacement: Comparison of median and mode from Phase 1 Quantitative Responses based on visit frequency

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi-Coefficient Value	Cramer's V Value
1	45.128	32	0.062	0.259	0.130
2	36.384	32	0.272	0.233	0.117
3	44.438	32	0.071	0.257	0.129
4	40.034	32	0.156	0.244	0.122
5	40.970	32	0.133	0.247	0.124
6	53.060	32	0.011	0.283	0.141
7	57.108	32	0.004	0.292	0.146
8	50.260	32	0.021	0.275	0.137
9	65.681	32	0.000	0.313	0.156
10	46.817	32	0.044	0.264	0.132
11	37.447	32	0.233	0.236	0.118
12	33.441	32	0.397	0.224	0.112
13	25.279	32	0.795	0.195	0.097
14	38.057	32	0.213	0.238	0.119
15	45.299	32	0.060	0.260	0.130

Table 45: Chi-squared test of Phase 1 Quantitative responses based on visit frequency

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Car/Car Share/ Van	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	3	2	4	3	4	4	5	3	5	3	3	1	4	3	3
	N	590	589	591	591	591	583	588	586	592	590	590	584	587	590	589
	SD	1.131	1.167	1.107	1.043	1.052	1.123	0.879	1.091	0.921	1.109	1.049	1.222	1.044	1.166	1.036
Bicycle	Median	3.50	2.00	4.00	2.50	4.00	3.00	5.00	2.00	4.50	2.50	3.00	1.00	4.00	3.00	4.00
	Mode	5	1	5	2	5	1	5	1	5	1	3	1	5	3	5
	N	10	10	10	10	10	9	9	10	10	10	10	10	9	10	10
	SD	1.354	1.506	1.578	1.418	1.418	1.537	1.364	1.287	1.101	1.337	1.179	1.449	0.707	1.476	1.287
Walk/Run	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	2.50	4.00	1.50	4.00	3.00	4.00
	Mode	3	1	4	3	5	5	5	2	4	2	4	1	4	3	5
	N	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36
	SD	1.297	1.358	1.167	1.018	0.931	1.301	1.137	1.265	1.000	1.134	1.394	1.390	1.165	1.261	1.191
Bus/ Minibus/ Motor home	Median	2.00	4.00	4.00	4.00	4.00	4.00	4.00	2.00	4.00	2.00	4.00	4.00	3.00	2.00	2.00
	Mode	2	4	4	4	4	4	4	2	4	2	4	4	4	2	2
	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	SD	1.342	0.894	1.095	0.894	1.095	1.140	0.548	0.894	0.548	1.140	1.095	1.643	1.000	0.894	0.894
Car and Walk	Median	5.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	2.00	4.00	1.00	5.00	3.00	4.00
	Mode	5	3	5	3	4	4	5	2	5	2	4	1	5	2	4
	N	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5
	SD	1.095	1.140	1.304	0.548	0.500	0.837	0.894	0.837	1.304	0.837	0.707	1.095	0.894	0.837	0.447
Car and/ or Minibus	Median	4.00	4.00	4.00	3.00	4.00	2.00	1.00	2.00	5.00	4.00	4.00	2.00	4.00	4.00	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Bicycle and Walk	Median	3.00	3.00	5.00	3.00	3.00	5.00	5.00	3.00	5.00	1.00	3.00	5.00	4.00	1.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Table 46: replacement: Comparison of median and mode from Phase 1 Quantitative Responses based on mode of transport

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi-Coefficient Value	Cramer's V Value
1	23.000	24	0.520	0.188	0.094
2	30.719	24	0.162	0.218	0.109
3	17.091	24	0.845	0.162	0.081
4	23.815	24	0.472	0.192	0.096
5	17.187	24	0.841	0.163	0.081
6	25.439	24	0.382	0.199	0.100
7	58.946	24	0.000	0.302	0.151
8	26.573	24	0.325	0.203	0.102
9	16.607	24	0.865	0.160	0.080
10	22.155	24	0.570	0.185	0.092
11	32.492	24	0.115	0.224	0.112
12	39.651	24	0.023	0.249	0.124
13	18.304	24	0.788	0.169	0.084
14	28.709	24	0.231	0.210	0.105
15	50.070	24	0.001	0.278	0.139

Table 47: Chi-squared test of Phase 1 Quantitative responses based on mode of transport

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Cycling	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	4	2	4	3	4	4	5	2	5	3	4	1	4	3	3
	N	99	99	99	99	99	99	98	98	99	99	99	98	99	99	99
	SD	1.064	1.221	1.235	1.092	1.213	1.093	0.907	1.015	0.898	1.155	1.005	1.292	1.118	1.081	1.030
Walking	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	3	2	4	3	4	4	5	2	4	3	3	1	4	3	3
	N	209	207	209	209	209	207	209	208	208	208	208	207	206	209	208
	SD	1.147	1.199	1.088	1.134	1.034	1.177	0.937	1.082	0.963	1.119	1.074	1.214	1.007	1.236	1.038
Dog Walking	Median	3.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	3	4	4	3	4	4	5	3	4	3	4	1	5	3	3
	N	89	89	89	89	88	86	87	88	89	89	88	89	88	88	88
	SD	1.178	1.106	1.097	0.927	0.965	1.145	1.019	1.081	0.806	1.049	1.135	1.200	1.092	1.159	1.006
Travelling through/ Dirt biking/ Scrambling	Median	3.50	3.00	4.50	4.00	5.00	5.00	4.00	4.00	5.00	3.00	4.00	4.00	3.00	3.00	2.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2
	SD	0.707	1.414	0.707	0.000	0.000	0.000	1.414		0.000	1.414	0.000	1.414	0.000	0.000	0.000
GoApe	Median	3.00	3.00	3.50	3.00	4.00	4.00	5.00	3.00	3.50	3.00	3.00	2.00	4.00	3.00	3.00
	Mode	3	3	3	3	4	4	5	3	3	3	3	1	4	3	3
	N	25	24	24	24	24	23	24	24	24	24	24	24	24	24	23
	SD	1.150	0.992	1.100	0.999	1.042	1.044	0.929	1.021	0.929	0.992	1.073	0.933	1.032	0.741	0.815
Picnicking	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	3.00	3.00	4.00	3.50	3.00
	Mode	5	3	4	3	5	4	5	3	3	3	3	3	4	3	
	N	40	40	39	40	40	40	40	39	40	40	40	40	38	40	40
	SD	1.281	1.301	0.951	0.871	0.921	1.219	0.716	1.091	1.017	1.085	1.097	1.436	1.192	1.176	1.018

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Family- Friends activities/ Children's play areas	Median	3.00	2.50	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	3.50	2.00	4.00	3.00	3.00
	Mode	3	3	4	3	4	4	5	3	4	3	3	1	4	3	3
	N	26	26	26	26	26	25	26	26	26	26	26	24	26	26	26
	SD	1.164	1.208	1.183	0.871	0.916	1.108	0.689	1.132	0.749	0.881	0.846	1.313	0.749	1.148	0.905
Camping/ Caravanning/ Hired Cottage	Median	4.00	2.00	5.00	4.00	5.00	4.00	5.00	3.00	4.00	4.00	4.00	4.00	5.00	3.00	5.00
	Mode	4	2	5	4	5	5	5	1	4	4	3	5	5	3	5
	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	SD	1.517	1.643	0.894	0.837	0.447	1.304	1.342	1.673	0.837	1.517	1.000	1.817	1.095	0.894	1.342
Running/ Jogging	Median	4.00	2.50	5.00	4.00	5.00	4.00	4.50	1.50	4.50	1.00	4.50	2.00	4.50	1.50	4.00
	Mode	4	.	5	4	5	5	5	1	5	1	5	1	5	1	5
	N	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	SD	0.816	1.291	0.500	1.500	0.000	1.915	0.957	1.893	0.957	1.500	0.957	1.500	0.957	1.414	1.155
Foraging	Median	4.00	4.00	3.00	2.00	4.00	4.00	5.00	3.00	5.00	3.00	4.00	3.00	5.00	3.00	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Use of site facilities	Median	4.00	3.00	4.00	3.00	4.00	4.00	4.00	3.00	4.00	3.00	4.00	4.00	4.00	3.00	3.00
	Mode	4	4	5	2	5	4	4	3	5	4	4	4	4	3	4
	N	9	9	9	9	8	9	9	9	9	9	9	9	9	9	9
	SD	0.972	1.269	1.225	0.928	1.282	0.972	0.667	1.167	1.302	1.269	1.130	1.000	0.972	1.202	0.833

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Sightseeing/ enjoyment of surrounding area	Median	4.00	2.50	4.00	3.00	2.50	3.50	4.50	2.00	4.00	2.00	4.00	1.50	3.00	2.50	4.00
	Mode	4	3	4	4	2	.	4	2	4	2	4	1	2	.	4
	N	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	SD	1.000	0.957	1.000	1.155	1.414	1.708	0.577	1.000	1.258	1.258	0.816	1.414	1.500	1.291	0.500
Nature watching	Median	4.00	2.50	4.50	2.50	5.00	4.00	5.00	1.50	5.00	1.50	4.50	1.00	5.00	3.00	5.00
	Mode	4	3	5	.	5	.	5	2	5	1	.	1	5	4	5
	N	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	SD	0.500	0.957	1.414	1.291	0.500	1.915	0.500	0.577	0.500	0.577	0.957	1.000	0.000	1.500	0.500
Orienteering route	Median	4.00	2.00	5.00	2.00	4.00	4.00	4.00	2.00	4.00	1.00	5.00	2.00	4.00	2.00	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Photography	Median	5.00	3.00	4.00	3.00	4.00	4.00	4.00	2.00	5.00	2.00	4.00	3.00	5.00	2.00	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Horse riding	Median	2.00	1.00	5.00	2.00	4.00	5.00	5.00	1.00	5.00	1.00	2.00	1.00	5.00	1.00	2.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Employment related	Median	4.00	2.00	4.00	3.00	4.00	3.00	5.00	2.00	4.00	2.00	4.00	1.50	4.00	2.50	4.00
	Mode	5	2	4	2	5	2	5	2	5	1	5	1	5	2	5
	N	13	14	14	14	14	14	14	14	14	13	14	14	14	14	14
	SD	1.188	1.151	1.286	1.099	1.141	1.328	0.756	0.864	0.726	0.650	1.122	1.292	0.864	1.222	1.038

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Multiple activities	Median	3.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	3.00	2.00	4.00	3.00	3.00
	Mode	3	2	4	3	4	4	5	3	4	3	4	3	5	3	3
	N	123	123	124	122	124	121	122	122	124	124	124	123	122	123	124
	SD	1.133	1.173	1.060	0.983	1.000	1.057	0.924	1.123	0.897	1.062	1.071	1.129	0.996	1.159	1.080

Table 48: replacement: Comparison of median and mode from Phase 1 Quantitative Responses based on activity

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi-Coefficient Value	Cramer's V Value
1	166.001	168	0.529	0.503	0.252
2	143.916	168	0.911	0.469	0.235
3	127.388	168	0.992	0.441	0.220
4	217.092	168	0.006	0.576	0.288
5	151.259	168	0.818	0.481	0.240
6	171.426	168	0.412	0.515	0.257
7	248.892	168	0.000	0.618	0.309
8	169.336	168	0.457	0.510	0.255
9	172.604	168	0.388	0.513	0.256
10	189.831	168	0.119	0.538	0.269
11	180.168	168	0.247	0.524	0.262
12	170.592	168	0.430	0.512	0.256
13	169.569	168	0.452	0.511	0.256
14	168.204	168	0.481	0.507	0.253
15	215.445	168	0.008	0.574	0.287

Table 49: Chi-squared test of Phase 1 Quantitative responses based on activity

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Visitor	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	3	2	4	3	4	4	5	3	5	3	4	1	4	3	3
	N	529	527	530	527	529	523	527	523	529	528	529	522	523	528	527
	SD	1.132	1.179	1.104	1.039	1.026	1.121	0.915	1.088	0.901	1.092	1.056	1.238	1.028	1.172	1.029
Resident	Median	4.00	2.50	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	3	2	5	3	4	4	5	2	5	3	3	1	5	3	3
	N	111	110	110	111	109	108	109	110	110	111	109	110	109	110	110
	SD	1.135	1.223	1.085	1.039	1.023	1.185	0.857	1.186	0.922	1.167	1.123	1.248	0.981	1.163	1.064
Employee	Median	4.00	2.00	4.00	3.00	4.00	3.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	2.00	4.00
	Mode	5	2	4	3	5	4	5	2	4	1	3	1	5	2	5
	N	16	17	17	17	17	17	17	17	17	16	17	17	17	17	17
	SD	1.211	1.105	1.228	1.091	1.197	1.269	0.712	0.920	0.686	0.775	1.047	1.219	0.809	1.125	1.000
All	Median	3.50	3.00	2.50	3.00	5.00	4.00	5.00	1.00	4.50	1.00	3.50	1.00	3.00	3.50	4.50
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	2.121	0.000	0.707	1.414	0.000	1.414	0.000	0.000	0.707	0.000	0.707	0.000	0.000	0.707	0.707

Table 50: replacement: Comparison of median and mode from Phase 1 Quantitative Responses based on user group type

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi-Coefficient Value	Cramer's V Value
1	15.229	12	0.229	0.152	0.088
2	16.322	12	0.177	0.158	0.091
3	10.982	12	0.530	0.129	0.075
4	14.435	12	0.274	0.148	0.086
5	6.727	12	0.875	0.101	0.058
6	9.567	12	0.654	0.121	0.070
7	7.449	12	0.827	0.107	0.062
8	16.821	12	0.156	0.161	0.093
9	4.139	12	0.981	0.079	0.046
10	24.583	12	0.017	0.193	0.112
11	8.394	12	0.754	0.113	0.065
12	18.399	12	0.104	0.168	0.097
13	10.956	12	0.533	0.130	0.075
14	8.509	12	0.744	0.114	0.066
15	7.731	12	0.806	0.109	0.063

Table 51: Chi-squared test of Phase 1 Quantitative responses based on user group type

Appendix 11 – Phase 2 Intervention Study Results Tables

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Male	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	4	4	3	5	4	5	2	5	1	4	1	4	3	4
	N	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295
	SD	1.173	1.242	1.155	1.165	1.247	1.245	1.049	1.231	0.988	1.234	1.115	1.209	1.172	1.113	1.177
Female	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	2	4	3	5	4	5	2	5	1	4	1	4	3	5
	N	345	345	345	345	345	345	345	345	345	345	345	345	345	345	345
	SD	1.104	1.220	1.198	1.124	1.108	1.119	0.717	1.135	0.764	1.102	1.151	1.041	1.039	1.073	1.135

Table 52: Comparison of Median and Mode from Phase 2 Quantitative Post-Intervention responses based on gender

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi Coefficient	Cramer's V Value
1	3.763	4	0.439	0.077	0.077
2	25.638	4	0.000	0.200	0.200
3	4.740	4	0.315	0.086	0.086
4	0.968	4	0.915	0.039	0.039
5	7.156	4	0.128	0.106	0.106
6	5.876	4	0.209	0.096	0.096
7	34.150	4	0.000	0.231	0.231
8	6.513	4	0.164	0.101	0.101
9	11.324	4	0.023	0.133	0.133
10	8.761	4	0.067	0.117	0.117
11	1.768	4	0.778	0.053	0.053
12	13.643	4	0.009	0.146	0.146
13	5.830	4	0.212	0.095	0.095
14	6.908	4	0.141	0.104	0.104
15	5.229	4	0.265	0.090	0.090

Table 53: Chi-squared test of Phase 2 Quantitative Post-Intervention responses based on gender

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16-18	Median	4.00	4.00	3.00	4.00	4.00	4.00	5.00	3.00	4.00	3.00	3.00	3.00	3.00	4.00	3.00
	Mode	5	4	4	4	5	4	5	3	4	2	5	3	3	4	4
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	SD	1.690	1.300	1.342	1.104	1.555	0.905	1.834	1.104	1.362	1.446	1.578	1.375	1.265	1.362	1.401
19-21	Median	4.00	2.00	4.00	3.00	4.50	4.00	5.00	2.00	4.00	1.00	4.00	2.00	4.00	2.50	4.50
	Mode	2	2	4	3	5	4	5	2	4	1	4	2	4	2	5
	N	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	SD	1.265	0.568	0.949	0.675	0.823	1.075	0.483	1.059	0.789	1.135	0.994	0.919	1.135	1.174	0.823
22-24	Median	4.00	2.00	3.00	3.00	4.00	4.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	2	4	3	5	5	5	2	4	1	4	1	5	3	4
	N	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	SD	1.212	1.259	1.195	1.071	1.214	1.447	0.769	1.065	0.911	1.108	1.071	1.079	1.228	1.243	1.257
25-34	Median	4.00	3.00	4.00	3.00	4.50	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00
	Mode	4	4	4	3	5	5	5	2	5	1	4	1	4	2	5
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
	SD	0.990	1.307	1.180	1.116	1.264	1.244	0.830	1.227	0.848	1.183	1.191	1.148	1.189	1.038	1.185
35-44	Median	4.00	3.00	4.00	3.00	5.00	4.00	5.00	2.00	4.50	2.00	4.00	2.00	4.00	2.00	4.00
	Mode	4	4	4	3	5	4	5	2	5	1	4	1	4	3	4
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
	SD	1.180	1.118	1.185	1.088	0.977	1.102	0.765	1.065	0.830	1.052	1.106	1.099	1.034	1.052	1.034
45-54	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	2	4	3	5	4	5	2	5	1	4	1	5	3	5
	N	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151
	SD	1.071	1.210	1.045	1.146	1.216	1.176	0.978	1.129	1.006	1.134	1.116	1.137	1.098	1.204	1.215
55-64	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	5	4	4	3	5	4	5	4	5	3	4	1	5	3	3
	N	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114
	SD	1.180	1.246	1.201	1.085	1.104	1.194	0.905	1.306	0.857	1.092	1.134	1.031	1.091	0.937	1.030

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
65-74	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	5.00	3.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	2	5	3	5	4	5	3	5	1	4	1	4	3	4
	N	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130
	SD	1.175	1.363	1.233	1.248	1.267	1.131	0.908	1.129	0.745	1.253	1.128	1.229	1.074	1.048	1.187
75-84	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	5.00	3.00	4.00	2.00	4.00	3.00	3.00
	Mode	5	4	4	3	5	4	5	2	5	2	4	2	4	3	3
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	SD	0.850	1.158	1.294	1.106	0.957	1.458	0.816	1.227	0.500	1.221	1.000	0.927	0.978	1.030	1.180

Table 54: Comparison of Median and Mode from Phase 2 Quantitative Post-Intervention responses based on age

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi Coefficient	Cramer's V Value
1	46.097	32	0.051	0.268	0.134
2	59.683	32	0.002	0.305	0.153
3	35.733	32	0.297	0.236	0.118
4	47.307	32	0.040	0.272	0.136
5	48.707	32	0.030	0.276	0.138
6	34.246	32	0.360	0.231	0.116
7	74.566	32	0.000	0.341	0.171
8	65.669	32	0.000	0.320	0.160
9	56.048	32	0.005	0.296	0.148
10	48.001	32	0.034	0.274	0.137
11	33.127	32	0.412	0.228	0.114
12	50.160	32	0.022	0.280	0.140
13	40.436	32	0.146	0.251	0.126
14	62.115	32	0.001	0.312	0.156
15	45.577	32	0.057	0.267	0.133

Table 55: Chi-squared test of Phase 2 Quantitative Post-Intervention responses based on age

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	Median	4.00	3.00	4.00	3.00	4.00	3.00	4.00	2.00	4.00	2.00	3.00	2.00	4.00	2.50	4.00
	Mode	4	2	4	4	4	3	5	2	4	2	4	2	4	2	4
	N	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	SD	1.248	1.213	1.062	1.060	1.377	1.122	1.351	0.947	1.083	1.135	0.977	1.285	0.917	0.955	0.955
B	Median	4.00	3.00	4.00	3.00	5.00	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00
	Mode	4	4	4	3	5	4	5	2	5	1	4	1	4	2	4
	N	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121
	SD	1.072	1.211	1.199	1.170	1.122	1.201	0.904	1.164	0.899	1.190	1.155	1.191	1.110	1.120	1.190
C1	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	4	4	3	5	4	5	2	5	1	4	1	5	3	5
	N	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190
	SD	1.144	1.276	1.114	1.026	1.162	1.191	0.828	1.160	0.901	1.105	1.184	1.129	1.059	1.094	1.144
C2	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	3.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	2	3	3	5	5	5	1	5	3	4	1	4	3	5
	N	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
	SD	0.981	1.026	1.049	1.175	1.079	1.249	0.800	1.284	0.765	1.095	0.950	1.004	1.157	1.068	1.119
D	Median	4.00	3.00	3.00	3.00	3.50	4.00	4.00	3.00	4.00	3.00	4.00	2.00	3.50	3.00	3.00
	Mode	4	2	4	4	3	5	5	4	4	3	4	2	3	3	3
	N	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	SD	1.096	1.336	1.255	1.139	1.127	1.197	0.859	1.235	0.885	1.021	1.050	0.844	0.944	1.016	1.088
E	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	4	4	3	5	4	5	2	5	1	4	1	5	3	3
	N	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189
	SD	1.217	1.310	1.223	1.224	1.210	1.114	0.920	1.146	0.836	1.232	1.163	1.156	1.159	1.098	1.181

Table 56: Comparison of Median and Mode from Phase 2 Quantitative Post-Intervention responses based on occupation

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi Coefficient	Cramer's V Value
1	24.283	20	0.230	0.195	0.097
2	29.080	20	0.086	0.213	0.107
3	47.922	20	0.000	0.274	0.137
4	40.038	20	0.005	0.250	0.125
5	66.895	20	0.000	0.323	0.162
6	28.143	20	0.106	0.210	0.105
7	72.115	20	0.000	0.336	0.168
8	35.080	20	0.020	0.234	0.117
9	39.759	20	0.005	0.249	0.125
10	48.464	20	0.000	0.275	0.138
11	26.207	20	0.159	0.202	0.101
12	53.113	20	0.000	0.288	0.144
13	52.603	20	0.000	0.287	0.143
14	27.149	20	0.131	0.206	0.103
15	41.572	20	0.003	0.255	0.127

Table 57: Chi-squared test of Phase 2 Quantitative Post-Intervention responses based on occupation

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Entry Level	Median	4.00	3.50	4.00	4.00	4.00	4.00	4.50	3.00	4.00	3.00	3.50	2.00	4.00	3.00	3.00
	Mode	4	4	4	3	4	4	5	4	4	3	4	2	5	3	3
	N	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
	SD	1.285	1.332	1.350	1.043	1.045	1.096	0.998	1.100	0.821	1.264	1.347	1.105	1.185	0.967	1.190
Level 1	Median	4.00	3.00	4.00	3.00	4.00	4.00	4.00	3.00	4.00	3.00	4.00	3.00	3.00	3.00	4.00
	Mode	4	2	3	3	4	5	4	3	4	3	4	3	3	3	3
	N	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
	SD	0.940	1.131	0.882	1.069	0.829	1.282	1.111	1.175	0.823	0.830	1.055	1.015	1.078	1.033	0.797
Level 2	Median	4.00	4.00	3.00	4.00	4.00	4.00	5.00	3.00	4.00	3.00	4.00	2.50	3.00	3.00	3.00
	Mode	4	4	4	4	3	5	5	4	4	3	4	3	3	3	3
	N	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	SD	1.181	1.234	1.285	1.094	1.133	0.990	0.887	1.245	0.948	1.102	1.056	1.030	1.015	1.114	1.097
Level 3	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	2	4	3	5	4	5	2	5	3	3	1	5	3	5
	N	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
	SD	1.083	1.199	1.146	1.007	1.103	1.118	0.794	1.223	0.755	1.006	1.174	1.191	1.142	1.050	1.110
Level 4	Median	4.00	3.00	4.00	3.00	4.00	4.00	4.00	3.00	4.00	3.00	4.00	2.00	4.00	3.00	4.00
	Mode	5	4	4	3	4	4	5	2	4	3	4	1	4	3	4
	N	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
	SD	1.115	1.235	1.038	1.085	1.239	1.107	0.889	1.079	0.700	1.187	0.932	1.017	0.890	0.915	1.227
Level 5	Median	4.00	2.00	4.00	3.00	5.00	4.00	5.00	2.00	5.00	2.00	4.00	1.00	5.00	2.00	4.00
	Mode	5	2	4	2	5	4	5	1	5	1	4	1	5	1	4
	N	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	SD	1.223	1.033	1.000	1.100	0.640	1.335	0.258	1.100	1.121	1.060	1.033	0.488	0.632	1.000	0.507

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Level 6	Median	4.00	2.00	4.00	3.00	5.00	4.00	5.00	2.00	5.00	2.00	4.00	1.00	4.00	2.50	4.00
	Mode	4	2	5	3	5	4	5	2	5	1	4	1	5	2	5
	N	196	196	196	196	196	196	196	196	196	196	196	196	196	196	196
	SD	1.155	1.242	1.104	1.174	1.252	1.196	0.930	1.093	0.856	1.159	1.145	1.097	1.067	1.054	1.122
Level 7	Median	4.00	3.00	4.00	3.00	5.00	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00
	Mode	4	4	4	3	5	4	5	2	5	1	4	1	4	1	5
	N	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136
	SD	1.137	1.189	1.139	1.153	1.137	1.201	0.860	1.088	0.944	1.125	1.130	1.170	1.183	1.122	1.156
Level 8	Median	4.00	4.00	4.00	3.00	5.00	3.50	5.00	2.00	5.00	1.00	4.00	2.00	4.00	2.00	4.00
	Mode	4	4	4	2	5	4	5	2	5	1	4	1	4	2	5
	N	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	SD	0.734	1.290	1.432	1.202	1.077	1.246	0.646	1.020	0.854	1.167	0.995	1.155	0.853	0.950	1.069

Table 58: Comparison of Median and Mode from Phase 2 Quantitative Post-Intervention responses based on highest academic qualification

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi Coefficient	Cramer's V Value
1	55.456	36	0.020	0.294	0.147
2	80.456	36	0.000	0.355	0.177
3	102.056	36	0.000	0.399	0.200
4	59.333	36	0.008	0.304	0.152
5	144.094	36	0.000	0.474	0.237
6	55.839	36	0.019	0.295	0.148
7	81.653	36	0.000	0.357	0.179
8	99.070	36	0.000	0.393	0.197
9	63.849	36	0.003	0.316	0.158
10	130.673	36	0.000	0.452	0.226
11	62.790	36	0.004	0.313	0.157
12	101.588	36	0.000	0.398	0.199
13	104.233	36	0.000	0.404	0.202
14	73.577	36	0.000	0.339	0.170
15	113.148	36	0.000	0.420	0.210

Table 59: Chi-squared test of Phase 2 Quantitative Post-Intervention responses based on highest academic qualification

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
B	Median	4.00	2.00	4.00	3.50	4.00	4.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	5	2	4	4	5	4	5	2	5	3	4	2	4	4	4
	N	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
	SD	0.834	1.236	0.988	1.053	1.159	1.224	0.615	0.809	0.960	1.112	1.031	1.020	1.104	1.119	1.285
CH	Median	5.00	4.00	4.00	5.00	5.00	5.00	5.00	4.00	5.00	4.00	5.00	1.00	4.00	4.00	2.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
CV	Median	3.00	2.00	4.00	3.00	4.00	3.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	5	2	4	3	4	3	5	2	5	2	4	2	5	3	5
	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	SD	1.789	1.140	1.517	1.140	0.837	1.140	1.304	1.140	1.225	0.894	0.707	1.140	1.304	1.140	1.304
DE	Median	4.50	2.00	5.00	3.00	5.00	4.00	5.00	1.00	5.00	1.50	4.00	1.00	4.00	2.00	4.50
	Mode	5	2	5	4	5	4	5	1	5	1	5	1	4	2	5
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
	SD	1.072	1.151	1.385	1.311	0.842	1.541	0.267	1.292	0.469	0.975	1.393	1.008	1.072	1.089	0.745
DY	Median	4.00	2.00	4.00	3.00	5.00	3.00	5.00	1.50	5.00	1.00	3.50	2.00	4.50	2.50	5.00
	Mode	4	2	5	3	5	3	5	1	5	1	4	1	5	3	5
	N	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
	SD	1.149	1.243	1.162	0.840	1.042	1.211	0.979	0.616	0.705	0.594	1.339	1.617	1.003	1.138	1.042
G	Median	5.00	2.00	1.00	2.00	5.00	2.00	5.00	5.00	5.00	1.00	3.00	1.00	4.00	1.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
HR	Median	3.00	2.50	3.00	3.50	1.50	4.00	4.00	3.00	3.50	3.00	4.00	3.00	3.50	2.50	3.50
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	2.828	0.707	1.414	0.707	0.707	0.000	1.414	1.414	0.707	0.000	1.414	1.414	0.707	0.707	0.707

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LE	Median	3.00	2.00	4.00	1.00	4.00	5.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	3.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LS	Median	4.00	2.00	4.50	3.00	4.50	4.00	5.00	2.50	4.50	1.50	3.50	1.00	4.50	2.50	4.50
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.000	1.414	0.707	0.000	0.707	1.414	0.000	0.707	0.707	0.707	0.707	0.000	0.707	0.707	0.707
NG	Median	5.00	2.00	1.00	2.00	1.00	3.00	5.00	3.00	5.00	1.00	5.00	1.00	5.00	3.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NN	Median	3.00	1.00	5.00	4.00	5.00	2.00	5.00	1.00	5.00	1.00	4.00	1.00	5.00	2.00	5.00
	Mode	3	1	5	4	5	.	5	1	5	1	4	1	5	2	5
	N	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	SD	0.577	0.577	1.732	1.155	0.000	2.082	0.000	0.577	0.577	0.000	0.000	0.000	0.000	0.577	0.000
NR	Median	5.00	4.00	5.00	2.00	5.00	4.00	5.00	2.00	4.00	1.00	5.00	1.00	5.00	1.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OX	Median	3.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	3.00	1.00	5.00	1.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
RG	Median	4.00	1.00	4.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	4.00	1.00	5.00	1.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SA	Median	3.50	3.00	4.50	2.50	4.50	3.50	3.50	2.50	4.50	2.00	3.50	2.50	4.00	2.50	3.50
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.707	1.414	0.707	0.707	0.707	0.707	2.121	0.707	0.707	1.414	0.707	2.121	0.000	0.707	0.707
SK	Median	3.00	3.00	3.00	3.50	4.00	4.50	4.50	3.00	3.50	3.00	3.50	2.50	4.00	2.50	2.50
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.000	1.414	1.414	0.707	0.000	0.707	0.707	0.000	0.707	1.414	0.707	0.707	1.414	0.707	0.707
SL	Median	5.00	3.00	5.00	3.00	5.00	2.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SN	Median	2.00	4.00	4.00	4.00	4.00	1.00	5.00	2.00	5.00	1.00	2.00	1.00	4.00	3.00	3.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ST	Median	4.00	2.00	4.00	3.00	5.00	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00
	Mode	4	2	4	3	5	4	5	2	5	1	5	1	5	2	5
	N	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
	SD	1.190	1.271	1.244	1.235	1.344	1.191	1.039	1.246	0.993	1.260	1.226	1.252	1.265	1.150	1.327
SW	Median	3.00	4.00	4.00	4.00	5.00	1.00	3.00	3.00	5.00	2.00	4.00	1.00	5.00	2.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SY	Median	4.50	2.50	3.50	1.50	4.50	2.50	5.00	1.00	2.50	1.50	3.00	1.00	5.00	2.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.707	0.707	0.707	0.707	0.707	0.707	0.000	0.000	2.121	0.707	2.828	0.000	0.000	1.414	0.000

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
TF	Median	3.00	4.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	2.00	4.00	2.00	4.00	2.00	4.00
	Mode	3	4	4	4	4	5	5	3	5	2	4	2	4	4	4
	N	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	SD	1.146	0.910	0.828	1.014	0.775	1.280	0.737	0.743	1.082	0.676	1.033	0.799	0.561	1.183	0.640
TQ	Median	5.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
W	Median	5.00	4.00	5.00	4.00	5.00	4.00	4.00	4.00	5.00	5.00	5.00	4.00	4.00	2.00	2.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
WA	Median	3.00	4.00	2.00	2.00	2.00	3.00	5.00	2.00	5.00	2.00	5.00	2.00	4.00	1.00	2.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
WR	Median	3.00	4.00	2.00	2.00	2.00	3.00	3.50	3.50	3.50	4.00	3.50	4.00	3.00	2.00	2.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.000	0.000	0.000	0.000	0.000	1.414	0.707	0.707	0.707	0.000	0.707	0.000	1.414	0.000	0.000
WS	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	4	4	3	4	4	5	2	4	3	4	1	4	3	3
	N	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294
	SD	1.111	1.255	1.144	1.117	1.100	1.092	0.876	1.170	0.815	1.117	1.073	1.049	1.066	1.027	1.078
WV	Median	4.00	2.00	4.00	3.00	5.00	4.00	5.00	2.00	5.00	2.00	4.00	1.00	4.00	3.00	4.00
	Mode	4	4	5	3	5	4	5	2	5	1	4	1	5	3	4
	N	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
	SD	1.180	1.244	1.214	1.047	1.061	1.182	0.884	1.071	0.717	1.187	1.110	1.001	0.959	1.183	0.939

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
YO	Median	4.00	4.00	4.00	2.50	4.50	3.50	5.00	2.50	4.00	1.50	4.00	2.00	3.50	1.50	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.000	0.000	0.000	0.707	0.707	0.707	0.000	0.707	0.000	0.707	0.000	0.000	0.707	0.707	1.414

Table 60: Comparison of Median and Mode from Phase 2 Quantitative Post-Intervention responses based on postcode

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi Coefficient	Cramer's V Value
1	114.275	112	0.423	0.423	0.211
2	103.588	112	0.703	0.402	0.201
3	144.929	112	0.020	0.476	0.238
4	141.954	112	0.029	0.471	0.235
5	188.454	112	0.000	0.543	0.271
6	155.848	112	0.004	0.493	0.247
7	117.986	112	0.331	0.429	0.215
8	166.876	112	0.001	0.511	0.255
9	151.988	112	0.007	0.487	0.244
10	178.996	112	0.000	0.529	0.264
11	123.111	112	0.223	0.439	0.219
12	173.903	112	0.000	0.521	0.261
13	108.504	112	0.576	0.412	0.206
14	106.383	112	0.632	0.408	0.204
15	164.657	112	0.001	0.507	0.254

Table 61: Chi-squared test of Phase 2 Quantitative Post-Intervention responses based on postcode

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
This my first visit	Median	4.00	2.00	4.00	3.00	4.00	3.00	5.00	2.00	4.00	2.00	4.00	1.00	5.00	2.00	4.00
	Mode	5	4	4	2	5	1	5	2	5	3	5	1	5	2	5
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	SD	1.044	1.168	1.136	1.009	1.537	1.618	1.036	0.944	1.375	0.894	1.348	1.027	0.924	0.982	1.044
Daily	Median	3.50	2.50	4.00	3.00	4.00	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	4	5	5	4	4	5	2	5	1	4	4	4	3	5
	N	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	SD	1.249	1.306	1.469	1.352	1.386	1.336	1.086	1.217	0.913	1.368	1.260	1.492	1.110	1.110	1.335
2/3 times per week	Median	4.00	2.00	4.00	3.00	5.00	4.00	5.00	2.00	5.00	1.00	4.00	1.00	5.00	2.00	4.00
	Mode	4	2	4	3	5	4	5	1	5	1	5	1	5	2	5
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
	SD	1.134	1.184	1.053	1.001	1.145	0.985	0.560	1.191	0.633	1.007	1.045	0.840	0.999	0.862	1.005
About once a week	Median	4.00	3.00	4.00	3.00	4.00	4.00	4.00	3.00	4.00	3.00	3.00	2.00	4.00	3.00	3.00
	Mode	4	2	4	3	4	4	5	3	4	3	3	1	4	3	3
	N	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97
	SD	1.132	1.282	1.106	0.992	1.186	1.034	1.043	1.112	0.961	1.125	1.016	1.096	1.224	1.053	1.110
About once a fortnight	Median	4.00	3.00	4.00	4.00	4.00	4.00	5.00	3.00	4.00	3.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	4	4	4	5	5	5	2	5	3	4	3	5	3	3
	N	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
	SD	1.142	1.275	1.260	1.121	1.272	1.211	0.973	1.221	1.000	0.987	1.180	1.103	1.189	0.942	1.054

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
About once a month	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	4.50	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	2	5	3	5	4	5	2	5	1	4	1	5	3	5
	N	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
	SD	1.130	1.234	1.157	1.155	1.040	1.246	0.852	1.244	0.718	1.129	1.216	1.110	1.191	1.160	1.238
About once in 3 months	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	4	4	4	5	4	5	2	5	1	4	1	4	2	4
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
	SD	1.149	1.258	1.185	1.143	1.257	1.148	0.836	1.211	0.907	1.340	1.072	1.164	0.981	1.070	1.089
About once in 6 months	Median	4.00	3.00	4.00	3.00	4.50	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	4	4	4	5	4	5	2	5	1	4	2	5	4	5
	N	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
	SD	1.253	1.309	1.153	1.281	0.952	1.230	1.049	1.141	0.826	1.175	1.087	1.088	0.953	1.204	1.110
Less than once in 6 months	Median	4.00	2.50	4.00	3.00	5.00	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00
	Mode	4	4	5	4	5	4	5	2	5	1	4	1	4	2	5
	N	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
	SD	0.984	1.187	1.231	1.158	1.078	1.173	0.668	0.914	0.769	1.066	1.167	1.211	0.951	1.116	1.220

Table 62: Comparison of Median and Mode from Phase 2 Quantitative Post-Intervention responses based on visit frequency

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi Coefficient	Cramer's V Value
1	21.621	32	0.917	0.184	0.092
2	30.273	32	0.554	0.217	0.109
3	46.260	32	0.049	0.269	0.134
4	48.011	32	0.034	0.274	0.137
5	77.580	32	0.000	0.348	0.174
6	41.912	32	0.113	0.256	0.128
7	64.204	32	0.001	0.317	0.158
8	68.446	32	0.000	0.327	0.164
9	75.020	32	0.000	0.342	0.171
10	78.640	32	0.000	0.351	0.175
11	55.144	32	0.007	0.294	0.147
12	73.138	32	0.000	0.338	0.169
13	58.945	32	0.003	0.303	0.152
14	54.515	32	0.008	0.292	0.146
15	60.693	32	0.002	0.308	0.154

Table 63: Chi-squared test of Phase 2 Quantitative Post-Intervention responses based on visit frequency

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Car/Car Share/ Van	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	4	4	3	5	4	5	2	5	1	4	1	4	3	4
	N	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525
	SD	1.115	1.234	1.158	1.126	1.168	1.159	0.825	1.169	0.832	1.152	1.107	1.084	1.062	1.078	1.123
Bicycle	Median	3.00	3.50	3.00	4.00	2.50	3.00	4.00	2.50	4.00	3.00	2.00	2.50	2.50	3.00	3.00
	Mode	3	5	4	5	2	5	5	2	4	3	2	3	2	3	3
	N	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	SD	1.337	1.443	1.414	1.303	1.240	1.586	1.193	1.000	1.030	1.115	1.084	1.231	1.138	1.165	1.165
Walk/Run	Median	4.00	2.00	4.00	3.00	5.00	4.00	5.00	2.00	5.00	2.00	4.00	1.00	4.00	2.00	4.00
	Mode	4	2	4	3	5	5	5	1	5	1	4	1	5	2	5
	N	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	SD	1.343	1.438	1.374	1.314	1.359	1.292	1.461	1.334	1.340	1.479	1.385	1.625	1.422	1.247	1.446
Bus/ Minibus/ Motor home	Median	4.00	3.00	3.00	4.00	4.00	4.00	4.00	3.00	4.00	2.00	4.00	2.00	3.00	3.00	3.00
	Mode	4	4	3	4	3	4	4	4	4	3	4	1	3	2	3
	N	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
	SD	0.814	1.338	1.117	0.973	0.910	1.284	0.750	1.338	0.707	1.007	0.873	1.102	1.165	1.102	1.076
Horse	Median	5.00	4.00	4.00	3.00	5.00	3.00	5.00	2.00	5.00	1.00	4.00	1.00	4.00	2.00	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Table 64: Comparison of Median and Mode from Phase 2 Quantitative Post-Intervention responses based on mode of transport

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi Coefficient	Cramer's V Value
1	27.687	20	0.117	0.208	0.104
2	31.384	20	0.050	0.221	0.111
3	37.986	20	0.009	0.244	0.122
4	39.539	20	0.006	0.249	0.124
5	72.071	20	0.000	0.336	0.168
6	20.193	20	0.446	0.178	0.089
7	76.048	20	0.000	0.345	0.172
8	24.106	20	0.238	0.194	0.097
9	67.961	20	0.000	0.326	0.163
10	50.149	20	0.000	0.280	0.140
11	57.673	20	0.000	0.300	0.150
12	70.375	20	0.000	0.332	0.166
13	51.837	20	0.000	0.285	0.142
14	39.483	20	0.006	0.248	0.124
15	42.512	20	0.002	0.258	0.129

Table 65: Chi-squared test of Phase 2 Quantitative Post-Intervention responses based on mode of transport

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Cycling	Median	4.00	3.00	4.00	3.50	3.50	4.00	4.00	3.00	4.00	3.00	3.00	3.00	3.00	3.00	3.00
	Mode	5	3	4	3	3	4	4	4	4	3	3	3	3	3	3
	N	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
	SD	1.141	1.193	1.026	0.914	1.088	1.124	0.855	1.157	0.967	1.015	1.075	0.915	1.036	0.875	0.955
Walking	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	4	4	3	5	4	5	2	5	1	4	1	4	2	4
	N	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308
	SD	1.167	1.236	1.181	1.188	1.127	1.143	0.882	1.138	0.874	1.136	1.127	1.121	1.120	1.126	1.127
Dog Walking	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	5.00	2.00	4.00	1.50	4.00	2.50	4.00
	Mode	4	2	4	3	5	4	5	2	5	1	4	1	5	3	5
	N	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84
	SD	1.071	1.218	1.168	1.114	1.276	1.138	0.897	1.162	0.630	1.053	1.025	1.046	1.040	1.045	1.101
Travelling through/ Dirt biking/ Scrambling	Median	4.00	3.00	3.50	2.00	4.00	2.00	5.00	1.50	5.00	2.00	4.00	1.00	5.00	3.00	4.50
	Mode	4	2	4	2	4	2	5	1	5	2	4	1	5	3	5
	N	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	SD	0.500	1.155	1.414	0.500	1.732	0.500	0.000	0.957	2.000	0.816	1.732	0.500	0.500	0.500	0.577
GoApe	Median	5.00	4.00	2.00	3.00	2.00	4.00	5.00	3.00	5.00	4.00	2.00	2.00	4.00	2.00	2.00
	Mode	5	4	1	2	2	5	5	5	5	4	2	2	4	2	2
	N	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	SD	1.225	1.000	1.716	1.414	1.481	1.269	0.707	1.641	0.866	1.581	1.167	1.500	0.866	1.118	1.364
Resident on site	Median	3.00	2.00	4.50	3.00	3.00	3.50	5.00	1.00	4.00	3.00	4.50	1.50	3.50	3.00	5.00
	Mode	3	2	4	4	.	4	5	1	4	.	5	1	5	3	5
	N	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	SD	1.258	1.000	0.577	1.155	1.826	0.957	0.500	1.500	0.816	1.826	1.414	1.414	2.062	0.000	1.500

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Family-Friends activities/ Children's play areas	Median	4.00	2.00	4.50	3.00	4.00	2.50	4.50	2.00	4.50	2.50	4.00	1.00	4.50	2.00	4.00
	Mode	4	2	5	4	4	2	5	2	5	1	4	1	5	2	4
	N	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	SD	1.169	1.225	1.169	1.169	0.894	1.472	0.816	0.632	0.816	1.633	0.632	0.837	1.265	0.983	0.408
Camping/ Caravanning/ Hired Cottage	Median	4.50	2.50	4.50	3.00	5.00	3.00	5.00	2.50	5.00	3.00	4.50	1.00	5.00	1.00	5.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	SD	0.707	2.121	0.707	2.828	0.000	2.828	0.000	2.121	0.000	2.828	0.707	0.000	0.000	0.000	0.000
Running/ Jogging	Median	4.00	2.00	4.00	2.50	4.50	3.50	5.00	2.00	5.00	1.00	4.50	1.00	4.00	2.00	4.50
	Mode	4	2	5	2	5	4	5	2	5	1	5	1	5	2	5
	N	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
	SD	1.315	1.088	1.377	1.204	1.167	0.964	1.033	1.258	0.629	1.310	1.360	1.167	1.471	0.885	1.340
General Leisure	Median	4.00	3.50	4.50	3.00	5.00	3.50	5.00	2.00	5.00	2.00	4.00	1.50	4.00	3.00	3.50
	Mode	4	1	5	3	5	4	5	2	5	1	5	1	4	3	5
	N	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
	SD	1.303	1.592	1.177	1.113	1.201	1.313	0.989	1.218	0.637	1.419	1.362	1.143	0.629	1.140	1.334
Concerts	Median	3.50	3.00	4.00	3.00	5.00	3.50	5.00	1.50	5.00	2.00	4.00	2.00	4.00	2.50	4.50
	Mode	.	4	4	3	5	3	5	1	5	1	4	2	4	3	5
	N	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	SD	1.291	1.155	1.258	0.500	1.500	0.957	1.000	0.957	0.500	1.155	1.000	0.816	0.816	0.957	0.957

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Sledging	Median	4.00	5.00	3.00	4.00	5.00	4.00	1.00	4.00	5.00	2.00	5.00	5.00	2.00	4.00	2.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD															
Nature watching	Median	4.00	2.00	5.00	3.00	5.00	4.00	5.00	2.00	4.00	1.00	4.00	1.00	4.00	2.00	4.00
	Mode	4	2	5	2	5	5	5	2	5	1	5	1	5	2	5
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	SD	1.128	1.095	1.401	1.183	0.688	1.629	0.934	0.944	0.982	1.250	1.293	0.934	1.362	0.924	1.401
Christmas activities	Median	4.00	2.00	4.00	4.00	4.00	4.00	4.00	1.00	5.00	2.00	3.00	2.00	5.00	3.00	4.00
	Mode	4	.	.	.	.	4	.	1	.	.	3	.	5	.	.
	N	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	SD	0.577	1.528	2.082	1.528	2.082	0.577	1.000	1.155	1.155	1.000	0.577	1.528	0.577	1.000	2.082
Photography	Median	4.00	2.00	4.00	3.00	5.00	3.00	5.00	1.00	5.00	1.00	4.00	1.00	5.00	2.50	5.00
	Mode	5	2	4	3	5	3	5	1	5	1	5	1	5	3	5
	N	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	SD	1.215	1.267	1.443	0.853	1.168	1.467	1.168	1.267	1.505	1.267	1.545	1.537	1.165	1.000	1.443
Horse riding	Median	5.00	4.00	4.00	3.00	5.00	3.00	5.00	2.00	5.00	1.00	4.00	1.00	4.00	2.00	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD															
Sailing	Median	2.00	4.00	5.00	3.00	5.00	4.00	5.00	2.00	5.00	1.00	4.00	1.00	5.00	3.00	4.00
	Mode	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	SD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Employment related	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00
	Mode	4	4	4	3	5	4	5	2	5	1	4	1	4	1	5
	N	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
	SD	1.039	1.157	1.048	1.222	0.920	1.385	0.617	1.186	0.551	1.204	0.980	1.118	0.599	1.226	1.243
Multiple activities	Median	4.00	2.00	4.00	3.00	5.00	4.00	5.00	2.00	5.00	1.50	4.00	2.00	4.00	2.00	4.00
	Mode	4	2	4	3	5	4	5	2	5	1	4	1	4	3	4
	N	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
	SD	0.967	1.199	0.990	0.956	1.137	1.134	0.659	0.990	0.696	1.099	1.052	1.241	0.899	1.079	1.170

Table 66: Comparison of Median and Mode from Phase 2 Quantitative Post-Intervention responses based on activity

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi Coefficient	Cramer's V Value
1	68.685	76	0.712	0.328	0.164
2	120.254	76	0.001	0.433	0.217
3	102.963	76	0.210	0.401	0.201
4	103.747	76	0.019	0.403	0.201
5	141.321	76	0.000	0.470	0.235
6	81.672	76	0.308	0.357	0.179
7	169.165	76	0.000	0.514	0.257
8	103.944	76	0.018	0.403	0.202
9	126.412	76	0.000	0.444	0.222
10	121.956	76	0.001	0.437	0.218
11	106.459	76	0.012	0.408	0.204
12	147.811	76	0.000	0.481	0.240
13	125.978	76	0.000	0.444	0.222
14	107.685	76	0.010	0.410	0.205
15	140.220	76	0.000	0.468	0.234

Table 67: Chi-squared test of Phase 2 Quantitative Post-Intervention responses based on activity

		NEP Question														
Group		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Visitor	Median	4.00	3.00	4.00	3.00	4.00	4.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	4	4	3	5	4	5	2	5	1	4	1	4	3	5
	N	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505
	SD	1.100	1.214	1.162	1.121	1.136	1.186	0.851	1.185	0.839	1.143	1.111	1.095	1.073	1.064	1.131
Resident	Median	4.00	2.00	4.00	3.00	4.00	4.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	3.00	4.00
	Mode	4	2	4	3	5	4	5	1	5	1	4	1	5	3	5
	N	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
	SD	1.283	1.402	1.259	1.263	1.363	1.139	1.128	1.182	1.053	1.308	1.252	1.298	1.274	1.206	1.275
Employee	Median	3.00	3.00	4.00	3.00	4.00	4.00	5.00	3.00	4.00	3.00	4.00	2.00	4.00	3.00	4.00
	Mode	3	2	5	3	5	4	5	3	4	3	4	2	4	4	3
	N	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	SD	0.816	1.195	0.915	0.834	0.884	1.302	0.799	1.113	0.676	0.910	0.910	0.834	0.594	1.082	1.014

Table 68: Comparison of Median and Mode from Phase 2 Quantitative Post-Intervention responses based on user group type

NEP Question	Value	df	Asymptotic Significance (2-sided)	Phi Coefficient	Cramer's V Value
1	17.875	8	0.022	0.167	0.118
2	29.305	8	0.000	0.214	0.151
3	17.135	8	0.029	0.164	0.116
4	15.932	8	0.043	0.158	0.112
5	18.456	8	0.018	0.170	0.120
6	4.193	8	0.839	0.081	0.057
7	27.054	8	0.001	0.206	0.145
8	17.580	8	0.025	0.166	0.117
9	16.054	8	0.042	0.158	0.112
10	19.213	8	0.014	0.173	0.123
11	8.498	8	0.386	0.115	0.081
12	16.582	8	0.035	0.161	0.114
13	21.472	8	0.006	0.183	0.130
14	16.585	8	0.035	0.161	0.114
15	9.675	8	0.289	0.123	0.087

Table 69: Chi-squared test of Phase 2 Quantitative Post-Intervention responses based on user group type